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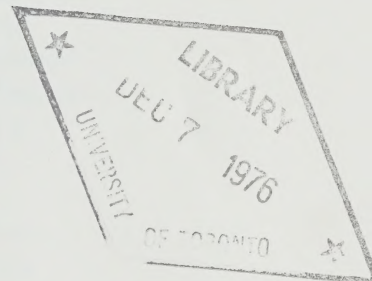
CONSERVING AND IMPROVING OUR PROPERTY

A HANDBOOK FOR PROPERTY STANDARDS OFFICERS

prepared

by

H. A. Hossé



for

The Community Renewal Branch of the Ministry of Housing,
Province of Ontario, May 1976



Office of the
Minister

Ministry of
Housing

May, 1976

Parliament Buildings
Queen's Park
Toronto Ontario

Over the years, the Government of Ontario has been continuously concerned about the conditions of housing throughout the Province. Aside from our efforts to provide and encourage newer and better housing production, we have also tried to encourage municipalities to undertake property maintenance policies and programs to maintain habitable conditions among existing housing stock.

As our initiatives to encourage municipalities have increased in recent years, so has the municipal response grown in the undertaking of these property maintenance activities. Subsequently, one of the evolving crucial elements in the local administration of property maintenance programs has been the Property Standards Officer: the official who must apply a municipality's property standards by-law to the community's buildings and lands.

For many municipalities, the experience of undertaking a property maintenance program is very recent although the local responsibility for maintaining suitable housing has been recognized as a basic "municipal housekeeping matter." To assist municipalities in this new challenge and to broaden the perspective of the Property Standards Officer, the Ministry of Housing has produced this publication to provide a rationalization of the objectives of a property maintenance program as well as outlining substantive administrative and technical information for the use of a Property Standards Officer.

A handwritten signature in dark ink, appearing to read "John R. Rhodes".

John R. Rhodes,
Minister of Housing



Ministry of
Housing

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May, 1976

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In 1962, the Provincial Government published a major report on property maintenance entitled "A Better Place to Live." The work involved in the production of this report revealed that there existed the need for a new discipline, a new expertise - a new look, a new approach. In 1976, many factors have emerged to support the findings of 1962. A property standards program is 'an anti-waste program': its objective is to conserve and improve existing structures throughout the community.

Over the years, a variety of circumstances have underscored the need for local property maintenance programs resulting in the introduction, during the past two years, of the Neighbourhood Improvement Program and the Ontario Home Renewal Program. To facilitate the municipal administration of these programs, the Ontario Ministry of Housing, together with the Central Mortgage and Housing Corporation and the Canadian Association of Housing and Renewal Officials, have sponsored annual four day study sessions for municipal property standards officers. The courses and instructional materials from these sessions have provided the background for this handbook.

I wish to acknowledge the major contributors to this publication including: all the instructors from the study sessions; the Ontario Association of Property Standards Officers; the publications of Mr. Matthew Lawson and Mr. George C. Rogers; and Miss Rosemary Ford and Mr. George Przybylowski, Community Renewal Branch, who co-ordinated the development of this handbook.

J.F. Brown
Director
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Table of Contents

INTRODUCTION:	USING THIS HANDBOOK	Intro.-1
CHAPTER I:	THE SIGNIFICANCE OF PROPERTY MAINTENANCE	1-1
	1.1. Some Basic Considerations	1-1
	1.2. Trends of The Recent Past	1-5
CHAPTER II:	PERSPECTIVES ON EXISTING LEGISLATION	2-1
	2.1. The Base of Municipal Authority	2-1
	2.2. Sections 36 and 37, The Planning Act	2-4
	2.3. The Property Maintenance and Occupancy Standards By-law	2-8
	2.4. The "Property Standards By-law" Relative to Other Rehabilitation Programs (NIP, RRAP, OHRP)	2-12
CHAPTER III:	DEFINITIONS AND STANDARDS	3-1
	3.1. "Standards and Standards": A Word of Caution	3-1
	3.2. Commonly Used Definitions	3-4
	3.3. Commonly Used Standards	3-9
CHAPTER IV:	PROCEDURAL ASPECTS OF ADMINISTERING AND ENFORCING	4-1
	4.1. Voluntary Compliance and The P.S.O. Image	4-1
	4.2. The Informal Notice	4-5
	4.3. The Notice of Violation	4-8
	4.4. The Hearing before The P.S.O.	4-12
	4.5. The Order	4-14
	4.6. Appeal before The Property Standards Committee	4-17
	4.7. Action in The Provincial Court	4-23
	4.8. Administrative and Related Aspects	4-24

CHAPTER V: TECHNICAL ASPECTS OF ADMINISTERING AND ENFORCING 5-1

5.1. Major Steps in the Rehabilitation Process 5-1

5.2. Initial Inspection: The Identification of Structural and Mechanical Deficiencies . 5-4

5.3. Scope of Work and Estimating Cost 5-11

5.4. Selecting The Contractor or Builder 5-26

5.5. Preparing The Contract 5-31

5.6. "Self-help" Rehabilitation or Repair Work . . 5-35

5.7. Progress Inspections and The Final Inspection 5-36

A SELECTED BIBLIOGRAPHY Bib.-1

APPENDIX A: Sections 36 and 37 of The Planning Act A-1

APPENDIX B: Major Structural Elements and Basic Mechanical Systems in Homes B-1

B.1. MAJOR STRUCTURAL ELEMENTS B-7

B.1.1. Forces Acting on Structures B-7

B.1.2. Classification of Wood B-9

B.1.3. Connectors B-10

B.1.4. Rough and Finish Carpentry B-11

B.1.5. Framing B-11

B.1.6. Roofs B-13

B.1.7. Partitions B-17

B.1.8. Insulation B-17

B.1.9. Stairs B-18

B.1.10. Windows B-19

B.1.11. Foundations and Cellars B-20

B.1.12. Cellar Piers B-23

B.2. BASIC MECHANICAL ELEMENTS B-24

B.2.1. The Plumbing System B-24

B.2.2. Heating Systems B-29

B.2.3. Electrical Systems B-36

APPENDIX C: Sample of An Inspection Check List C-1

INDEX Index-1

**INTRODUCTION
USING THIS HANDBOOK**

INTRODUCTION: USING THIS HANDBOOK

This Handbook has been prepared, in the first place, for the Property Standards Officers (P.S.O.) of the Province of Ontario. It may also be useful and applicable in many respects to the counterparts of the Ontario P.S.O.'s in other provinces of Canada, where the need for systematic property maintenance and rehabilitation has been recognized in relevant legislation. The conservation and improvement of the building stock has acquired significance throughout the country as a viable alternative to the formerly predominant form of renewal which often necessitated demolition, clearance and re-building.

In the second place, this Handbook may serve as an information and reference source for municipal administrators and for elected people who have the responsibility to legislate, within the framework of local government, measures ensuring the continued preservation of our immediate environment, namely our property, as a matter of good municipal housekeeping. The Handbook will provide the local administrators and politicians with an understanding of the significance of property maintenance and the complex technical and administrative procedures involved in properly administering a "Property Standards By-law". Hopefully, it will also provide them with an appreciation of the responsible role and work of a P.S.O. in the community.

As noted at various places in the Handbook, the conditions and environments of Ontario's municipalities vary greatly from region to region. There is a definite uniqueness and individuality of character attached to each municipality, and rarely, if ever, is there an absolute sameness between two of them. This uniqueness and individuality of communities has to find its way into the standards to be adopted for the maintenance and possible gradual upgrading of the property in the

municipality. Therefore, this Handbook must be considered as a general guideline with suggested samples and examples, but not as a complete and detailed prescription applicable in its entirety to every municipality. Modifications and additions are necessary so as to reflect local conditions and to incorporate in the maintenance standards and related regulations the goals and aims of the community.

The effects of a well administered municipal by-law introducing certain standards for the maintenance and occupancy of property are of long-term benefit to the community. However, the essential factors precipitating these effects are continuity and systematic municipality-wide application of the provisions of such a by-law. Occasional spot checks or "action as a result of complaints" are not sufficient. Conserving and improving our property requires the well organized and continuous efforts of people exclusively trained and charged with the responsibility of administering the by-law: the Property Standards Officers.

The role and functions of a P.S.O. within his community are discussed and explained in this Handbook at various places and in various contexts. Essentially, the P.S.O. is a new type of a specialist whose specialization is to be a generalist. His occupation requires a combination of skills that has never been necessary until the recent introduction of property maintenance and occupancy aspects into provincial legislation, i.e., Sections 36 and 37 of The Planning Act. He is usually a man who has one of the skills of carpentry, plumbing, electrical work, general construction, building inspection, real estate, etc. and who has to develop the others on the job. Aside from being familiar with construction methods and materials, building, safety and health codes, architectural design, cost estimating and many other related structural and mechanical aspects, the P.S.O. must have the skill to write a readable and understandable report and to cope with the legal procedures involved in achieving compliance by the property owners with the terms and provisions of the "Property Standards By-law". Since he has to deal with the public on a face-to-face basis, he must possess good human relations skills. In total, his work and success

as a P.S.O. are based on technical and procedural competence combined with the capability of using his own "good judgment".

Many aspects discussed and explained in this Handbook may appear to be obvious to the well initiated P.S.O., and they are sometimes also repetitious. It is felt, however, that a re-examination of, or a fresh unbiased look at, what may seem to be obvious and, more or less, a routine matter leads frequently to new avenues of approach to a given problem. Often, this also promotes a better understanding and a clarification of the P.S.O.'s activities, functions and responsibilities. It should be remembered, however, that the work of the P.S.O. is taking place in an ever-changing environment. What is up-to-date today may be outdated tomorrow; existing legislation and government programs may be replaced and/or amended by new acts, policies or regulations; and technology is progressing continuously, changing and innovating materials and structural and mechanical devices in the building industry and quickly dating what is regarded as modern and new at the present. It is the P.S.O.'s responsibility to keep abreast of these changes, and he must be aware of them because he may encounter them in his daily work. In this context, it will be understandable and forgivable that a publication like this Handbook can simply not be fully contemporary and entirely up-to-date. While caution is mentioned on many occasions in the following text, it must be emphasized here again that the material contained in this Handbook is not intended to cover the entire field of a P.S.O.'s work or all aspects of maintenance and rehabilitation. If there are doubts, questions or new problems and if he needs help or advice, the P.S.O. can always consult with the staff of the Community Renewal Branch of the Ministry of Housing.

For the past few years, the Community Renewal Branch has been very active in promoting and organizing local workshops, regional study sessions and provincial seminars for Ontario P.S.O.'s and for many people directly or indirectly connected with the subject of property maintenance. Again and again, the participants expressed the strong desire and the pressing need to have the material discussed at these sessions summarized and brought together in the form of a Handbook.

Following these demands and recognizing the need for such a summary, this Handbook has been prepared. It is hoped that it will not only serve as an occasional reference for a specific item, but rather that it will become a working tool assisting the P.S.O. in the discharge of his complex day-to-day functions. For other interested readers, this publication may help in the understanding of the implications and significance of properly administered maintenance and occupancy regulations. As noted earlier, the position of a P.S.O. is a rather new addition to the group of civic employees. To understand better and to appreciate more fully his role within a community and as a vital element in the functioning of a municipality, it becomes essential to learn about his responsibilities and how they are carried out. Thus, this Handbook hopes to serve both the P.S.O. and the general public, including, in particular, those who have been entrusted with governing the community.

There is one aspect of the establishment of maintenance standards on a community-wide scale and on a continuing basis that requires more than marginal attention. This is the fact that a consistently carried out program of property maintenance calls for a great deal of repair or rehabilitation work and for skilled tradesmen to perform such work. As has been evidenced in the U.S.A., where this type of rehabilitation program has been in operation for several years, it has created an almost new industry in the various municipalities where it has been pursued with consistent effort. The "rehabilitation trade" has become a novel and rather vital element in the local economy. A similar development can be expected in Ontario, and much in this regard will depend on the success of the P.S.O.'s work.

A special point has been made earlier regarding the uniqueness and individuality of Ontario's many municipalities. In full recognition of this fact, it must, however, be realized that there is a necessity for the adoption of a generally accepted terminology. There is a great number of technical and non-technical items and issues which are given different names by different persons in different places. To promote better communication and to state clearly what is meant by certain words, it is necessary to establish a broadly accepted method

of expression, i.e., a common terminology. There is no way of pleasing everybody in this regard or of satisfying all opinions on what is the best word describing a certain feature or item. An attempt has been made in this Handbook to use the most common expressions and the most broadly accepted terminology. Thus, for example, "repair work" necessary to achieve compliance with the adopted maintenance standards of a municipality is often referred to as "rehabilitation work", and both terms are used interchangeably in this Handbook. The term "property" as used here includes both a building and its surrounding grounds; in the absence of a building, it refers to the vacant lot. The "property maintenance and occupancy standards by-law", which is the proper name according to Section 36 of The Planning Act, is commonly referred to as the "Property Standards By-law", and this shorter version is used in this Handbook. There may be many more terms and names employed in the text of the following chapters, probably somewhat deviating from those used in one or another municipality; in such instances, the reader is reminded of the aforementioned range of variation in many respects among the large number of municipalities in Ontario. It is virtually impossible to do full justice to these variations within the confines of a publication that tries to address the full scope of a P.S.O.'s involvement at a province-wide scale.

With regard to the Handbook itself, it should be stressed that its primary aim is to guide; it asks neither strict adherence to its suggestions nor slavish copying of its terminology, definitions or standards. It is submitted to the P.S.O.'s of Ontario as a beacon to point a direction without imposing an absolute goal, to encourage a uniformity of approach to the whole field of property maintenance and occupancy without demanding conformity to a specified code for all municipalities, and to act as a ready, but not exclusive, reference source in administering the "Property Standards By-law". It is intended to serve as the P.S.O.'s "pocket guide" to property maintenance. To this end, the Handbook has been carefully structured so that it proceeds from the political and conceptual rationale for property maintenance legislation, through commonly used definitions and standards to the procedural and technical aspects of administering the by-law.

In Appendix A, the relevant sections of The Planning Act are presented so as to provide the P.S.O. with a ready source of information on the enabling legislation for the "Property Standards By-law". This reference source is not intended as a substitute for the P.S.O.'s required meticulous knowledge of the municipal by-law itself. When it comes to the implementation of the provisions of the local by-law, it is only reasonable to assume that the earnest P.S.O. will realize the value of fingertip familiarity with its detailed terms, provisions and regulations. This comes only with continuous study and daily experience in the practice of property rehabilitation and maintenance.

In Appendix B, a brief and rather generalized account of the major structural and mechanical components of an average home are described and explained. In recognition of the fact that not all P.S.O.'s have an adequate background in construction, the intent of this part of the Handbook is to provide some measure of technical background and a general source of reference. As noted earlier, the terminology used in this context is based on common and generally accepted conventions and does not pretend to be all inclusive and coincident with that used in every municipality. Over time, the P.S.O. must develop a vocabulary of terms which are understandable and commonly used in his municipality and which he must use consistently throughout his work.

In Appendix C, a suggestion is presented for the development of an inspection check list. While this example is borrowed from one of the municipalities where it is in daily use, it is by no means the only way in which such a list should be set up. For the P.S.O. who does not use a consistent method of recording his inspection findings, this example may provide a sample from which to develop his own form; for the P.S.O. who has already drawn up his own check list, Appendix C gives an opportunity for comparison and possible improvement of his current form.

The Handbook also includes a selected bibliography, organized under three major headings: (A) the rehabilitation process; (B) rehabilitation technology; and (C) property standards. It is hoped that

this will encourage the P.S.O. to "read around" his field, to inform himself of desired and, possibly, necessary detail and advances in the many aspects of his work so as to enhance his professional competence. It is also hoped that this brief bibliography will provide him with an incentive to create his own small library of relevant publications to be used as a ready reference and information source for his work.

Above all else, this Handbook seeks to elucidate the aims and practice of property rehabilitation and maintenance in Ontario. It strives to define the process and to describe the routes towards its accomplishment. The role and responsibilities of the P.S.O., his functions and his work are the focus in the balanced combination of public concern and private effort related to "conserving and improving our property".

CHAPTER I
THE SIGNIFICANCE OF
PROPERTY MAINTENANCE

CHAPTER I

THE SIGNIFICANCE OF PROPERTY MAINTENANCE

1.1. Some Basic Considerations

1.1.1. Buildings and their surrounding grounds are usually referred to as "property". This rather general connotation has been adopted in this Handbook. It is true of properties of all kinds that their condition and longevity depend largely on their proper maintenance and intensity of use or occupancy. If it is realized that property constitutes a large portion--and likely, the most intensively used portion--of our immediate environment, it becomes obvious that its proper maintenance and occupancy are imperative in order to assure an attractive community and personal environment.

1.1.2. Throughout Ontario, conditions vary greatly. Most property is quite well maintained, but in all parts of the Province, there are buildings and grounds that need attention. Yards are littered with rubbish; buildings need repair; homes lack plumbing, are dirty or overcrowded; premises are unsightly, unpainted and unkempt.

1.1.3. Where property is neglected, deterioration often leads to its becoming a public liability, not just a private misfortune. Ultimately, renewal action by the municipality may be decided upon as the way to get rid of the problem at considerable public expense. It is recognized that this is justified because blight causes a weakening of the community's ability to operate productively and effectively for its people, and the condition is not likely to be solved otherwise. The tax base becomes weaker, the costs climb higher, the economy declines

and people suffer. However, this situation can largely be prevented if effective maintenance measures are carried out.

1.1.4. Concern is greatest over the condition of housing. People's lives, their investments and their enjoyment of the places where they live are immediately affected. But there are also mounting problems posed by other kinds of property. Unsightly and neglected shops; industry marked by run-down buildings, muddy yards and abandoned machinery; dilapidated farm buildings; broken sidewalks and unkempt boulevards; messy car dumps and salvage yards; are all too common. They are major problems in many parts of Ontario, detracting from their communities and our general environment.

1.1.5. Throughout many regions of Ontario, properties, both grounds and buildings, are generally maintained adequately. The great bulk of this maintenance is done as a normal undertaking by the owner. Year by year, homeowners do what they can by their own efforts. They buy what they can afford out of ready cash and do the work themselves, calling in tradesmen and contractors only when they have to. Landlords and business and industry generally rely on contractors or have their own maintenance staff; but they also regard this as a normal, continuing task to be undertaken over the years.

1.1.6. Unfortunately, there are many instances where homeowners as well as landlords and owners of commercial and industrial establishments do not make the necessary efforts to maintain their property adequately. In many cases, this may be neglect; in others, it may be a profit motive; and there is also a great number of cases where the owners have not the necessary means to repair and maintain their property even though they would like to do so. Since property maintenance has a significant effect on the entire community, it then becomes a task of that community (i.e., the municipality) to ensure that appropriate maintenance of all properties within its jurisdiction is carried out by all owners in an "acceptable" manner and degree. Thus, "acceptable" must be translated into a set of standards, and their enforcement must be attained by legislation.

1.1.7. Closely related to the problem of maintenance is that of "over-occupancy", or overcrowding, of dwellings. Both of these problems need attention and active, continuous enforcement of preventive regulations in order to preserve a community's housing and general building stock. Obviously, the application of maintenance regulations cannot ignore the often detrimental effects of too many people in too limited and restricted space. Although it is realised that such situations are usually the result of insufficient means to pay for more adequate accommodation and that some people have established a way of life which permits them to occupy a dwelling quite intensively without causing problems, there are, nevertheless, the negative effects of "overcrowding" on health and general safety of the occupants themselves and also on the service facilities and the structure which were not designed for such intensive use. It is often argued that "overcrowding" is one of the agents contributing to the deterioration and blight of residential buildings.

1.1.8. Regardless, whether or not one or the other of the above-noted arguments is accepted, there is little doubt that maintenance and occupancy are interrelated and that both aspects require attention. Thus, it becomes reasonable, and also practical, to link and include them both in respective legislation for the establishment of "Property Maintenance and Occupancy Standards By-laws".

1.1.9. There is one other aspect associated with the importance of maintaining and preserving the buildings and their grounds. They constitute the real financial asset and, in terms of borrowing, the "collateral" of every municipality. The value of real property forms its major tax base, and maintaining that property in good condition thereby ensures the continuing financial basis for the provision of municipal services and operations. The matter of property maintenance, therefore, must be of imperative concern to the community and an integrated function of good municipal housekeeping.

1.1.10. The Property Standards Officer (P.S.O.) of a municipality performs a vital and most important role within the overall framework of maintenance and preservation of a community's property

and of the people's immediate environment. He is the public guardian of both, and his function and work must be governed by the responsibility and trust which the community has vested in him. He is not simply an enforcement officer or a by-law administrator; neither is he merely an inspector watching over the adherence to certain standards. His role and function must be viewed in a much broader perspective. As will be pointed out in subsequent chapters of this Handbook, the P.S.O. holds a position within the community combining all the above-noted functions as matters of routine; but in addition, he must use a great deal of personal discretion in the interpretation and enforcement of the standards adopted for the municipality. In many instances, he will act as an advisor to the property owners using his knowledge and experience in a persuasive way rather than in the authoritative way of a municipal code enforcement officer. In total, he has to pursue his duties with a delicate balance of trust by the people in the community and of determination in the implementation and application of the standards and provisions of the maintenance and occupancy standards ordinance. Once he has achieved this kind of relationship with his "clientele", the performance of his day-to-day work will be a mixture of listening and teaching, of persuading and forcing and of helpfully advising and determinedly executing.

1.1.11. Considerable sums of public funds have been expended in the past--and are currently allocated--for the upgrading of Ontario's housing and building stock. Programs of redevelopment, rehabilitation and improvements have consumed, and continue to consume, large portions of public efforts and monies. All these endeavours and expenditures are of relatively little and of no lasting value if they are not accompanied by, and followed up with, a continuous program of efficient municipal housekeeping in the form of applied and properly executed maintenance regulations. Such preservation measures have been the concern of the Province for many years, and they are currently actively pursued by the Community Renewal Branch of the Ministry of Housing.

1.2. Trends of The Recent Past

1.2.1. Overt provincial interest in the conservation of existing housing first became apparent in 1954 when the late A. E. K. Bunnell, then Director of the Province's Housing Branch, formally advised the City of Toronto that no further provincial financial aid toward redevelopment would be forthcoming unless the City enforced its Housing Standards By-law which had been enacted through Private Bill in 1936. The occasion was a federal/provincial agreement to assist the City in clearing Regent Park South for social housing purposes.

1.2.2. As the Province continued to assist municipalities through both housing and urban renewal programs in the late 1950's, it also encouraged the adoption of housing conservation programs. Since there was no overall enabling provincial legislation, the pace was very slow. In 1952 Ottawa and in 1958 Windsor--again both through Private Bills--embarked upon such programs; and as aid was extended nationally through the National Housing Act and through the interests and efforts of Central Mortgage and Housing Corporation (C.M.H.C.), recognition of housing maintenance and occupancy standards gradually spread across Canada. However, aside from Toronto, Ottawa and Windsor, only Halifax, Yarmouth and Winnipeg had either ordinances or programs, although New Brunswick had some quite comprehensive rehabilitation legislation as early as 1935.

1.2.3. In 1958, the Ontario Department of Planning and Development with a 75 per cent grant under the provisions of Part V of the National Housing Act, embarked upon a nation-wide study of the need for housing conservation programs. The study was based on the fact that respective controls and regulations abounded in a variety of the legislation of a number of provinces. Two years later, a somewhat reluctant conclusion was reached: while controls and regulations did abound in fire, health, building, plumbing and electrical legislation, rarely were they used in a concentrated co-ordinated manner to achieve a true housing conservation program. Only in Winnipeg, where the late George Kelly vigorously pursued a conservation program through provincial health

legislation, did it work. Elsewhere, specific concerns regarding certain parts of the dwelling unit prevailed to the exclusion of the dwelling unit as a whole. The final report of the Ontario study, "A Better Place to Live", was published in 1962 and has become a milestone in housing conservation. It was widely acclaimed as a definitive work in the slowly emerging field of "community renewal". The report seemed to have stimulated housing conservation programs and legislation across Canada.

1.2.4. Resulting from the recommendations contained in "A Better Place to Live", the Province passed legislation in 1964 which would permit municipalities to pass by-laws setting out minimum standards of maintenance and occupancy for residential properties (Section 30(a) of The Planning Act). This legislation was welcomed by many municipalities as a means of ensuring the preservation of municipal housing stock, the removal of derelict buildings (which were incapable of any sort of repair) and as a means of safeguarding and preserving all housing that existed and all that would be constructed in the future.

1.2.5. However, this legislation was not easily borne; "invasion of private rights", "more controls", etc. were frequent charges. As a result, the legislation was well insulated from easy "abuse". A municipality had to have a statement of housing conservation in its Official Plan, which in itself was a sobering, prime requisite in those days. In addition, the by-law had to receive the approval of the Ontario Municipal Board (O.M.B.). Expanded financial assistance, reflected in the 1964 federal/provincial Urban Renewal Program, provided a timely forum to encourage municipalities seeking funding also to embark on housing conservation programs. This partially offset the built-in inhibition of the Official Plan and O.M.B. requirements.

1.2.6. In the course of assisting in the preparation and implementation of urban renewal schemes and projects in a large number of Ontario communities, the then Urban Renewal Section (now the Community Renewal Branch) of the Province continually stressed the need for municipalities to pass minimum standards by-laws both as a means of improving existing property and as a preventative measure which could

alleviate to a large extent the need for public renewal action in the future. In other words, the philosophy was to prevent deterioration from becoming entrenched in homes and neighbourhoods and to halt the spread of blight before it had the opportunity to affect whole neighbourhoods.

1.2.7. During this period, the City of Ottawa obtained, through private legislation, authority to enact a non-residential standards by-law, thereby covering all property. As a result, an initiative was created to assess the need for similar overall legislation for the Province. This initiative took the form of a provincially funded study by M. B. M. Lawson, which was completed in 1970. The resultant report, entitled "The Maintenance of Property--A Program for Ontario", was widely circulated for comment. Among the report's twenty-two recommendations were: amending The Planning Act to permit by-laws to include all property; removal of the requirement of an Official Plan as a prerequisite to a municipal property standards by-law where no Official Plan was in effect; and removal of the requirements for O.M.B. approval. In 1972, these recommendations were acted upon, and the present Sections 36 and 37 of The Planning Act were established. These amendments permit municipalities to pass by-laws setting out minimum maintenance and occupancy standards for all types of property, even vacant property (see Appendix A).

1.2.8. Basic to all these briefly described activities over the past two decades has been the concern regarding the conservation of existing structural resources and the prevention of waste through the neglect of property, through disrepair and through over-crowding. Education, persuasion and good management have become the major components of effective municipal housekeeping. And the Property Maintenance and Occupancy By-laws of the municipalities represent the legislative expression of this concern and one of the most significant tools in their housekeeping efforts.

CHAPTER II
PERSPECTIVES ON
EXISTING LEGISLATION

CHAPTER II

PERSPECTIVES ON EXISTING LEGISLATION

2.1. The Base of Municipal Authority

2.1.1. The existing municipal system in Ontario had its foundation in the "Baldwin Act" of 1849. Generally speaking, Ontario's local government structure, as it is known today, was, at that time, set up for the settled southern portion of the Province in terms of counties, townships, villages and towns. Obviously, this municipal organization underwent a number of modifications and changes in the time period that followed, but essentially, the geographical areas of municipal jurisdiction and the structure itself have changed relatively little in the last 125 years. Some of the villages and towns of those days developed into cities, which became independent municipal units and which were set apart from the county framework for some extended period of time. However, most of those cities have now returned into that framework in conjunction with the recent establishment of regional municipalities and/or restructured counties. Many of these restructured units comprise a former county or are an amalgamation of two counties or parts of them with a number of their constituent municipalities having been combined into geographically larger units.

2.1.2. Since municipalities are political and administrative sub-units created by the Province, the Ontario Government with its elected representatives and its administrative staff provides a leading and guiding role with respect to these local government units. This leadership and guidance are reflected in legislation and programs, the aim of which is to establish a base and frame for municipal

self-government (as expressed largely in The Municipal Act). Thus, respective legislation affecting municipalities is usually referred to as "enabling legislation", setting out certain mandatory requirements and prescribing limits within which the municipalities are able to act. In order to preserve the essential aspects of local self-government, the initiative of whether or not to make use of the provisions of provincial enabling legislation is usually left with the municipal governments. That is why most of this legislation contains the conditional phraseology of "a municipality may..." However, if the municipality does make use of a particular piece of such legislation, it must comply with the provisions and requirements contained in that legislation. When municipalities pass their own sets of regulations, they are usually expressed in the form of "by-laws" which must comply with the provincial legislative framework. If this should not be the case, i.e., if a municipality wants to pass a by-law for which there is no enabling provincial legislation in existence, it becomes necessary that a special "Bill" be passed in the Provincial Legislature to give the appropriate authority to the municipality to issue by-laws for that particular purpose. Thus, in general, there cannot be a municipal by-law without permissive provincial legislation enabling the municipality to establish such a by-law.

2.1.3. In this context, it should be noted that a "resolution" is not a by-law. A resolution adopted by a municipal council represents a binding local commitment with respect to a particular issue or a specific policy, usually, over a given time period.

2.1.4. Sometimes, provincial as well as municipal legislation affects certain individuals or their property in a way that could be construed as an infringement on those individuals' personal or "private rights". In such cases, the common and accepted argument is that the legislation is for the "common good" although it may harm or hurt one or more particular individuals. For example, if a road widening, a new bridge, a land consolidation for a public park or any such similar

project are regarded necessary in order to accommodate or facilitate essential services for a large portion of the municipality's residents, considerations of the "private rights" of any individual are reviewed in concert with considerations for the "common good". This situation, however, becomes much more complicated if and when legislation is enforced which dictates how and to what degree an individual should maintain his property. While it is accepted that an individual must behave in a certain way within society and with regard to his fellow men, which acceptance actually will protect him against the extreme behaviour of others (as expressed, for instance, in the criminal code), it is not as readily accepted when a similar argument is advanced regarding the maintenance of his property. Although essentially a similar situation prevails (i.e., protection against the extreme behaviour of his fellow men), the issue of maintenance is not always seen and understood in this way. As has already been noted in chapter one, it is emphasized here again that the lack of adequate property maintenance has a direct and detrimental effect on adjacent properties and on the neighbourhood; thus, others may be harmed through the neglect of appropriate property maintenance by an individual owner. Placed within this perspective, it becomes obvious that legislation for the adherence to property maintenance standards is for the "common good".

2.1.5. Similar reservations and arguments with regard to the issue of "private rights" were very common and frequently used in courts several years ago when land use zoning regulations were enforced by the municipalities in a consistent and strict manner. In essence, they constituted a confrontation of owners and the public (i.e., the government) over conflicting interests and rights as to how a property could be used. Today, the very right and legitimacy of the government to institute use regulations, or zoning, are rarely questioned; objections in this regard are usually directed to the proposed use itself, and arguments are addressed to its appropriateness. In other words, the public has accepted the regulatory role and function of its government in this regard, and aspects of "private rights" no longer, or very rarely, enter the zoning dispute. It may take a little time, but eventually

there will be a similar acceptance of the government's right and the communal need to be concerned with a person's attitude respecting the maintenance of his property.

2.2. Sections 36 and 37, The Planning Act

2.2.1. Having established the legitimacy of government action with respect to how an individual's property is maintained and occupied, Sections 36 and 37 of The Planning Act provide enabling legislation for municipalities to establish legal tools for the administration of property maintenance and occupancy standards within their areas of jurisdiction. The actual need for such provincial and local legislation has been pointed out generally in chapter one and the first part of this chapter in terms of existing conditions and the consequences of inadequate maintenance and inappropriate occupancy. Clearly, there is sufficient evidence that not all properties in a community are maintained in an acceptable manner and that there is frequent lack of private effort in their maintenance. Any P.S.O. after being "on the job" for a short period of time can supply ample testimony and refer to many cases which will substantiate this point.

2.2.2. The following is a brief elaboration and explanation of Sections 36 and 37 of The Planning Act. It is presented here to give the P.S.O. an understanding of those salient points of this enabling legislation which are of direct relevance to his day-to-day work. This will help him to understand the interrelationship between the actual municipal "Property Standards By-law", which contains his direct terms of reference, and the somewhat broader intent of the provincial legislation, which has to take into account the diversity of local requirements in Ontario, thus allowing municipalities to develop by-laws in accordance with their individually different and unique needs.

2.2.3. Significant as they are in terms of need and timeliness, the provisions contained in Sections 36 and 37 of The Planning Act are

essentially "permissive". This implies that it is not mandatory for a municipality to enact legislation regulating the maintenance and occupancy of property, but rather that it is entirely within the discretion of the local authority whether or not to take advantage of this enabling provincial legislation. However, once a municipality has decided upon a course of action in this field, Sections 36 and 37 establish a binding framework within which this regulatory operation must occur. Thus, it becomes essential for the P.S.O., whose very position is directly derived from respective provisions in Section 36, to be familiar with the provincially established terms and references of his function within the municipality. Obviously, the local authority can add and elaborate on these functions in order to integrate them into its own administrative organization. But it must always be realized that the basic authority to perform these functions goes back to the provisions of Section 36.

2.2.4. While the aforementioned remarks may appear to be self-evident and obvious to most P.S.O.'s, there can develop situations, as has been the actual case in some municipalities, where one or the other provision of Section 36 may have been ignored or forgotten by the municipality in its enactment of property maintenance and occupancy regulations. For example, a "Property Standards By-law" may be established and a P.S.O. appointed. However, for one reason or another, the local council may not have established a Property Standards Committee as provided for under Section 36. Consequently, the work and operation of the P.S.O. would be conducted ineffectively, and it would not be possible for his eventual orders to be legally enforced. Under those circumstances, it becomes the rightful duty of the P.S.O. to discuss the matter with the responsible municipal administrator and to make him or her aware of the particular situation.

2.2.5. As will be pointed out in more detail in chapter three, the provincial legislation does not provide for everything in the administrative procedure. The actual standards to be adopted by the municipality, for instance, are not spelled out in Section 36. However, the procedural aspects themselves, particularly with respect to

enforcement, are laid down in sequential order and in some detail. And this is of significance to the P.S.O.! In order to give a ready and authentic reference in this respect, Sections 36 and 37 of The Planning Act are enclosed in this Handbook as Appendix A; and he is urged to study and understand this, to him, most important and relevant part of the provincial enabling legislation. Details of the work and general functions of a P.S.O. will be discussed in chapters four and five.

2.2.6. Section 37 of The Planning Act is relatively short and simple; the underlying intent of this piece of enabling legislation is a logical and necessary follow-up to Section 36. It is a direct response to the question: what happens if the owner of a property has been notified and, possibly, ordered to make certain repairs as indicated by the P.S.O., but he or she does not have the money to pay for them although he or she is perfectly willing to comply with the notice or order? Certainly, the provisions of the current Ontario Home Renewal Program (O.H.R.P.) could be applied. But it must be realized--as pointed out in Section 2.4. of this Handbook--that O.H.R.P. is a provincial program which has been designed for a specific purpose and for a limited time. Consequently, to lend continuity and permanence to the aims and goals embedded in Section 36 of The Planning Act, it becomes a necessary and practical requirement for a municipality to establish provisions which will be able to cope with the question of the inability of an owner to pay for required repairs in order to comply with the municipality's property maintenance and occupancy standards. With the enabling provisions under Section 37, this question can be dealt with rather easily and at relatively little cost by the municipality, provided its council has decided to make use of the provisions of Section 37 and has confirmed that decision by by-law. Despite its straight-forward and simple, and yet so necessary provisions, Section 37 of The Planning Act has not been used by many Ontario municipalities. At the time of the preparation of this Handbook, only the Cities of Toronto and Ottawa had passed by-laws employing Section 37 in close relation and association with their "Property Standards By-law". Clearly, the implementation of such

a by-law calls for the adoption of Section 37 so as to provide a comprehensive approach to property maintenance for a municipality; no longer can there be an excuse by any owner for non-adherence to the adopted standards of property maintenance and occupancy.

2.2.7. With respect to the provisions contained in Section 37 (see Appendix A), these give the municipality the authority to make loans or grants to the property owner to help pay in whole or in part for the repairs listed by the P.S.O. in his notice. An application for such loan and/or grant assistance has to be made by the owner to the council. Before applying, a notice pursuant to Subsection 6 of Section 36 has to be sent to the owner by the municipality. The detailed procedure to follow in this respect is set out in Section 37.

2.2.8. The role of the P.S.O. in the loan and/or grant procedure under Section 37 is not a directly participatory one. He is not responsible for the initiation and subsequent processing of the application; however, it can reasonably be expected of him to be knowledgeable of, and familiar with, this particular type of assistance and, where appropriate, to make respective property owners aware of it. The P.S.O. is not a loan officer, and his functions and responsibilities do not include the determination of how an owner can pay for the repairs listed in his notice and possible subsequent order. As mentioned earlier, it is within the broad overall framework of his relationship with the community that the P.S.O. provides help, advice and assistance in the pursuit of his rather difficult and often delicate duties. In other words, he must use a great deal of discretion in the discharge of his complex functions. His informed advice to a property owner will be appreciated.

2.3. The Property Maintenance and Occupancy Standards By-law

2.3.1. As noted earlier, a municipality may enact a "Property Standards By-law" pursuant to Section 36 of The Planning Act in order to govern the maintenance and occupancy of all types of property within its boundaries; this includes residential, commercial, public, institutional, industrial and also vacant properties. While it is possible for a municipality to confine the standards of the by-law to residential property, it is much more desirable and consistent to make all types of property within the community subject to the provisions of such by-laws. In this way, multiple use properties such as a commercial building also containing residential quarters can be covered by municipal maintenance and occupancy regulations. Only if all properties are included, can the municipality make a consistent and uniform effort toward the proper maintenance and gradual improvement of the quality of the living and working environment for all of its inhabitants.

2.3.2. In order for a municipality to enact a "Property Standards By-law", it must either have an Official Plan containing provisions relating to the maintenance and occupancy of property, or, in the absence of an Official Plan, it must have formally adopted a policy statement of council which pertains to such provisions. An existing Official Plan without these provisions requires an amendment to allow for them. Whether the appropriate prerequisite for a "Property Standards By-law" for a given municipality is an amendment to the existing Official Plan or a policy statement adopted by council, both documents should include the same sort of provisions, and both must be approved by the Minister of Housing before the municipality may pass the by-law.

2.3.3. The specific provisions concerning property maintenance and occupancy in an Official Plan or in a policy statement must be determined for the individual community on the basis of the local situation. Here, only general suggestions can be made about the type of content that might be appropriate for these provisions.

Purpose:

Under this heading, there might be a general statement to the effect that it is the policy of the municipality to encourage the development and maintenance of an efficient and pleasant environment for living, working, shopping, and recreation. It might go on to point out--if this, in fact, is the case--that the quality of property in the community is generally high with adequate community facilities and amenities; but that it is in the long-term interest to maintain and gradually improve this quality through the introduction of municipality-wide maintenance and occupancy standards for all properties.

Identification:

The municipality should have adequate information on property which falls below reasonable standards. This will assist in preparing a by-law appropriate to the local situation and will permit the making of specific references to certain local conditions. In this way, the subsequent by-law can be tailored to suit any special needs within the community or to clear up any special problem areas, e.g., obsolete industrial buildings, junk yards, etc.

Administration:

There should be an indication concerning the delegation of responsibility for carrying out the provisions.

Implementation:

The measures to be used generally in achieving a property maintenance program may be stated and, among others, could include:

- an education and public relations program to show people the benefits of continued property maintenance, together with information showing what improvements can be made without increasing the assessment;
- consistent enforcement of the existing building, zoning, health and fire prevention by-laws and other related ordinances;

- the enactment of a property maintenance and occupancy by-law pursuant to Section 36 of The Planning Act.

2.3.4. Municipalities considering any aspect of the foregoing are advised to discuss their proposals with the staff of the Community Renewal Branch and, if an amendment of the Official Plan is involved, the Official Plans Branch of the Ministry of Housing. Since the Official Plan amendment or policy statement requires the Minister's approval, the staff will want to ensure that it genuinely reflects the community's maintenance needs and that all matters are covered appropriately thereby facilitating the subsequent enactment of the by-law.

2.3.5. Once the prerequisite requirement of an amendment to the Official Plan or a policy statement has been satisfied (or if the existing Official Plan already contains such a statement), the municipality may proceed to adopt a "Property Standards By-law" in accordance with Section 36 of The Planning Act. The maintenance and occupancy standards which are incorporated into the by-law for a certain municipality should be related and particularly suited to the existing conditions in the community. However, there must also be standards which are somewhat general in nature and which would apply to most structures such as standards relating to structural soundness for certain basic components of a building, e.g., foundations, walls and roofs (see chapter three for a detailed discussion).

2.3.6. Assistance and advice in drafting the by-law are available from the Community Renewal Branch, and municipalities are encouraged to keep in close contact with the Branch staff in order to minimize any difficulties and problems which they may encounter. The Branch also normally reviews the municipality's by-law in the draft stage. This review procedure is a means of helping the municipality to avoid pitfalls which other municipalities may have encountered in drawing up by-laws, and of ensuring that the necessary items have been included to make the by-law effective for the municipality. It is also a means of ensuring that the wording of various sections of the by-law are clearly stated and will stand up in court in the event of an appeal by a property owner against the Order to repair. When the by-law has

been reviewed by the Branch and is felt by all parties to be satisfactory in form and content, it may then be approved through the normal procedure of receiving three readings by the municipal council.

2.3.7. The advantage to a municipality of enacting a "Property Standards By-law" is that the by-law represents a legal instrument giving the municipality legal powers to ensure that adequate repairs and maintenance works are carried out on a continuing basis throughout the community. It is a permanent document, which is intended to cover not only all existing structures, but which will also apply to all new construction in the future. The purpose in the case of new buildings is to ensure that they continue to remain in good condition over the years and do not begin to deteriorate because of lack of maintenance. In this way, blighting influences can be halted before they have an opportunity to spread to other buildings and eventually to their neighbourhoods thus commencing a gradual process of physical, social and economic decline of whole areas in the municipality.

2.3.8. The "Property Standards By-law" provides, therefore, the basis on which the municipality can proceed with a complete long-term program of maintaining and improving conditions throughout its area of jurisdiction. This long-term approach to continuing and consistent action is the only way to preserve the quality of the environment of the community. A most important factor in the success of such a long-term program of property maintenance is the stimulation of pride and interest on the part of residents in the quality of their physical environment.

2.3.9. A visible example of municipal cooperation and confidence in the future of the community is provided by the proper maintenance of municipally owned property such as public buildings, works and equipment yards, parks and other municipal property. The municipality should be prepared to undertake whatever public works may be necessary throughout the community including the provision of parks, improvement of roads, sidewalks and laneways, the provision of adequate parking and the maintenance and improvement of water and sewerage

services. Although these are normal civic undertakings, they serve the purpose of reinforcing the aims and successes expected from the "Property Standards By-law", especially if they are undertaken in conjunction with a concerted effort to improve general conditions by systematically progressing from neighbourhood to neighbourhood.

2.4. The "Property Standards By-law" Relative to Other Rehabilitation Programs (NIP, RRAP, OHRP)

2.4.1. The principles of property maintenance as embodied in a "Property Standards By-law" constitute also the core of special rehabilitation programs which have been developed and are now being administered through the cooperative efforts of the federal, provincial and municipal levels of government. These special programs are:

- Neighbourhood Improvement Program (NIP);
- Residential Rehabilitation Assistance Program (RRAP); and
- Ontario Home Renewal Program (OHRP).

2.4.2. For the first two of the above-noted programs, known as NIP and RRAP, it is a requirement that municipalities participating in the program have in effect a "Property Standards By-law". For municipalities participating in OHRP, there is the option of having either a "Property Standards By-law" in effect or of adopting appropriate property maintenance and occupancy standards by Resolution of Council.

2.4.3. When a municipality has adopted its property standards by Resolution of Council, the adoption document sets out those property maintenance and occupancy standards that will be used only for the purposes of the Ontario Home Renewal Program (OHRP). These standards will not apply to all of the properties within the community as is the case with a "Property Standards By-law", but they will apply only to those properties whose owners apply for, and receive, OHRP loans for the purpose of rehabilitating these properties. In other

words, the rehabilitation loan is to be used to bring individual properties up to the minimum standards considered to be acceptable for the health, safety and convenience of the inhabitants. In order to determine whether a property is substandard, the standards embodied in the Resolution of Council are used as a yardstick in much the same way as those standards embodied in a "Property Standards By-law". Similarly, once a property has been repaired or rehabilitated with the assistance of an OHRP loan, the standards are again used to determine whether or not the repairs made are adequate.

2.4.4. It should be emphasized that the property standards adopted by Resolution of Council do not have any application beyond the boundaries of the Ontario Home Renewal Program (which Program is restricted to residential property only), or, in other words, they are applicable only to those residential properties for which an owner-initiated application for a loan has been made. They do not have the strength of a legal instrument, and they are neither applicable to all properties in a municipality nor do they constitute the basis for a long-term program of maintaining and preserving the physical components of a community.

2.4.5. It is apparent that the property standards adopted by Resolution of Council have a limited scope and are not nearly as useful to a municipality as are those embodied in "Property Standards By-laws" in terms of the preservation of all properties within a community on a permanent basis. Some municipalities after having adopted property standards by Resolution of Council--mainly to qualify for provincial OHRP loans--have seen the value of a "Property Standards By-law" and have begun to draft such a by-law for application to all properties in the entire community. Once the "Property Standards By-law" has been approved by the local council, its embodied standards will, of course, replace those which were adopted earlier by a Resolution of Council.

2.4.6. Relating the "Property Standards By-law" to the special rehabilitation programs currently being implemented, the following brief summary can be made:

- NIP and RRAP require that the municipalities have adopted maintenance standards by by-law (i.e., a "Property Standards By-law"), which standards have to comply with those established for these programs. They are applicable specifically within the accepted delimitations of "NIP areas" as well as to the municipality as a whole. Within these selected areas, applications can be made by owners of residential property for assistance under RRAP in order to rehabilitate (repair) these properties, subject to the standards set out in the by-law.
- OHRP does not require a "Property Standards By-law", although the requirements of the program will accept the standards of such a by-law. In the absence of a "Property Standards By-law", it requires, however, standards adopted by Resolution of Council. These standards are applicable only to the limited number of residential properties for which the owners have requested assistance under the terms of this program.

2.4.7. The role of the P.S.O., as related to NIP, RRAP and OHRP varies from one municipality to another. There is no doubt that he must be aware of these programs and understand their operation even though he may be completely divorced from them. It is not possible to discuss in this Handbook the wide range and various degrees of his involvement. He should recognize, however, that these programs are limited in both time and space. They are federal and provincial government programs operating under annual budget allocations, and their range may be increased or decreased from one year to another, or they may even be phased out. In contrast to these limitations and the relative uncertainties of the above-noted special rehabilitation programs, the "Property Standards By-law" represents permanency and continuity, applies to all types of property and covers the entire community. It is to this municipally initiated community-wide maintenance "program", within the framework of enabling provincial legislation, that the responsibilities and functions of the P.S.O. are tied and that makes

him another "institution" of permanence and continuity in civic concerns and services. His involvement in, and relationship with, the special rehabilitation programs involving federal, provincial and municipal partnership is, more or less, incidental--although of current extreme significance--and he has to perform the duties arising from such involvement with the same competence and efficiency as he uses with respect to administering the "Property Standards By-law".

CHAPTER III
DEFINITIONS AND STANDARDS

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3.1. "Standards and Standards": A Word of Caution

3.1.1. The most critical and essential part of maintenance and occupancy regulations is the establishment of acceptable and implementable standards. There is a number of factors and considerations which have to be taken into account before a municipality can undertake to express its desires and ambitions respecting the conditions of property in a definitive set of standards. This is not an easy task! A necessary precondition for the development of such standards is a detailed knowledge of the existing condition of the entire property stock of a community. While the standards may reflect the municipality's desire to upgrade certain portions of that property, caution must be exercised so as not to aim for standards which are too high and too ambitious thereby rendering obsolete a large proportion of the existing building stock. To implement a maintenance program under those circumstances would be most difficult, if not impossible, and may defeat the original purpose for its initiation.

3.1.2. The question of "what standards for our municipality" has often resulted in referral to the Province for the establishment of uniform, province-wide property maintenance standards and associated regulations. However, there is such a variation in property and living conditions from one part of Ontario to another that a uniform set of standards would be meaningless in some areas and impractical in others. Some variation in local standards appears to be inevitable and not undesirable. In realization of this situation, provincial enabling

legislation has been kept rather broad in this respect and, essentially, leaves it to the individual municipality to define and establish its own set of applicable maintenance and occupancy standards.

3.1.3. It is strongly emphasized--and it cannot be stressed enough--that the adopted standards and the related definitions of terms used in that context are to reflect the local conditions and community needs. Therefore, the standards and definitions have to be tailored to suit these conditions and to respond to these needs; but, at the same time, they should incorporate the realistic ambitions of the community and its goals for a gradual upgrading and continued maintenance of its overall property conditions. As noted above, there is little uniformity in this respect among the municipalities across Ontario; a definite individuality and uniqueness is attached to each of them. And this very fact has to find its way into the standards and their associated definitions. Consequently, one cannot, and must not, expect that the standards of one city or town are the same as, or even significantly similar to, those of another city or town. And yet, there is the tendency for many a local government council to "copy" the standards and definitions for its municipality from those of another one, which other municipality, in turn, may have followed the same procedure when it was faced with this task. Obviously, such an approach negates the quest and necessity for truly local standards which reflect the particular conditions and particular aims of a particular community.

3.1.4. It is realised that the development of entirely original standards and definitions is a difficult and very complex and comprehensive undertaking for a municipality. This is true, in particular, if that municipality lacks professional and financial resources to do this. And it is also realised that, among the municipalities, there are certain basic and rather similar requirements for quite a number of aspects concerning the maintenance and occupancy of property. However, rather than copying the standards and definitions of another municipality which might have incorporated certain peculiarities or features unique to it and which might thus be taken over by the other municipality, it is strongly suggested that the definitions and standards

set out in the following sections be considered for basic and general guidance.

3.1.5. The following GUIDELINES for definitions and standards, prepared by the Community Renewal Branch, are meant to be exactly what the word implies: they are to provide guidance when new definitions and/or standards are to be established or when existing ones are scheduled for review. The "Guidelines" are not exhaustive, and they are not intended to be the "standard" standards. They leave plenty of room for improvements, modifications, changes and, above all, for the inclusion of specific and/or particular features which a municipality wishes, or deems necessary, to have incorporated in its definitions and standards. With these limitations and possible inadequacies in mind, the "Guidelines" for the establishment of property maintenance and occupancy standards and the respective definitions are presented in the following sections of this Handbook.

3.1.6. There is another aspect to be aware of if and when definitions and standards are being considered: their relationship with other similar standards and/or definitions which have been established and adopted for all or certain individual components of property within a municipality. It is not possible to mention all acts, by-laws, regulations, etc. and their respective definitions and standards having a bearing on the maintenance and occupancy standards. However, a P.S.O. should be fully aware of them, and in cases of uncertainty, he should consult with the appropriate person or persons of the municipal administration to ascertain that the standards which he has the responsibility to administer do not contradict standards contained in other related regulatory legislation. To mention only a few of these regulations which have either implicit or explicit standards and definitions contained within the body of their provisions, reference is made to zoning ordinances, fire prevention by-laws or acts, plumbing, heating and electric wiring regulations, public health and environmental protection acts, regulations concerning pesticides and weed control, and the Ontario Building Code. There are many other related regulatory measures with implied standards, and, as noted above and in chapter two,

the P.S.O. must be aware of them. While the property maintenance and occupancy standards may reflect a large portion of these other standards, a municipality may want to add certain aspects of property maintenance covered in part only, or not covered at all, in these related regulations.

3.1.7. There are many instances where the above-noted related regulations, by-laws, etc. are not fully or not consistently implemented. The integration of relevant related regulations into a by-law for the maintenance and occupancy of property facilitates the work of the P.S.O. In other words, the P.S.O. has only one principal operational base--namely the property maintenance and occupancy standards by-law--rather than having a multitude of regulations with which he must be concerned. It goes without saying that the P.S.O. must coordinate his work with that of the various enforcement officers in related fields.

3.2. Commonly Used Definitions

3.2.1. As noted in Section 2.3., a municipal property maintenance and occupancy standards by-law must contain a set of standards. However, preceding these standards--possibly as part of them, or placed at the beginning of the entire by-law--must be an explanation of terms used in the by-law and, obviously, also in the standards themselves; this explanation is usually called the "definition" or "interpretation" section. These definitions, as far as pertaining to the standards, are an intimate and absolutely necessary part of them, and, as such, they are part of the overall by-law. Their importance will become particularly evident if and when a case ends up in court as part of the enforcement procedure.

3.2.2. As has been proven on numerous occasions, lengthy litigations can be substantially shortened and, above all, the P.S.O.'s position in court can be greatly eased if there are definitive and

clear definitions of the terms used in the application of standards. The ready resolution of an appeal against an order for repair or non-compliance with standards often depends on the inclusion or expressed exclusion of a certain feature or features in the definition of a given term.

3.2.3. A typical lesson in this respect, signifying the importance of a definition, may be taken from a case which occurred in an Ontario municipality only a few years ago. The P.S.O. was asked to inspect a well constructed split-level "treehouse". Since the maintenance and occupancy of this "dwelling unit" complied with the existing standards and since the structure itself complied with other related relevant regulations--mainly by default, for none of these regulations was applicable to "treehouses"--the case resulted in rather cumbersome and lengthy litigations. A simple addition to the definition of a "dwelling" in the standards section of the municipality's property maintenance and occupancy by-law specifically excluding "treehouses" and, for example, "cave dwellings" (don't forget that there are all kinds of people) would have clarified and markedly eased the work of the P.S.O.

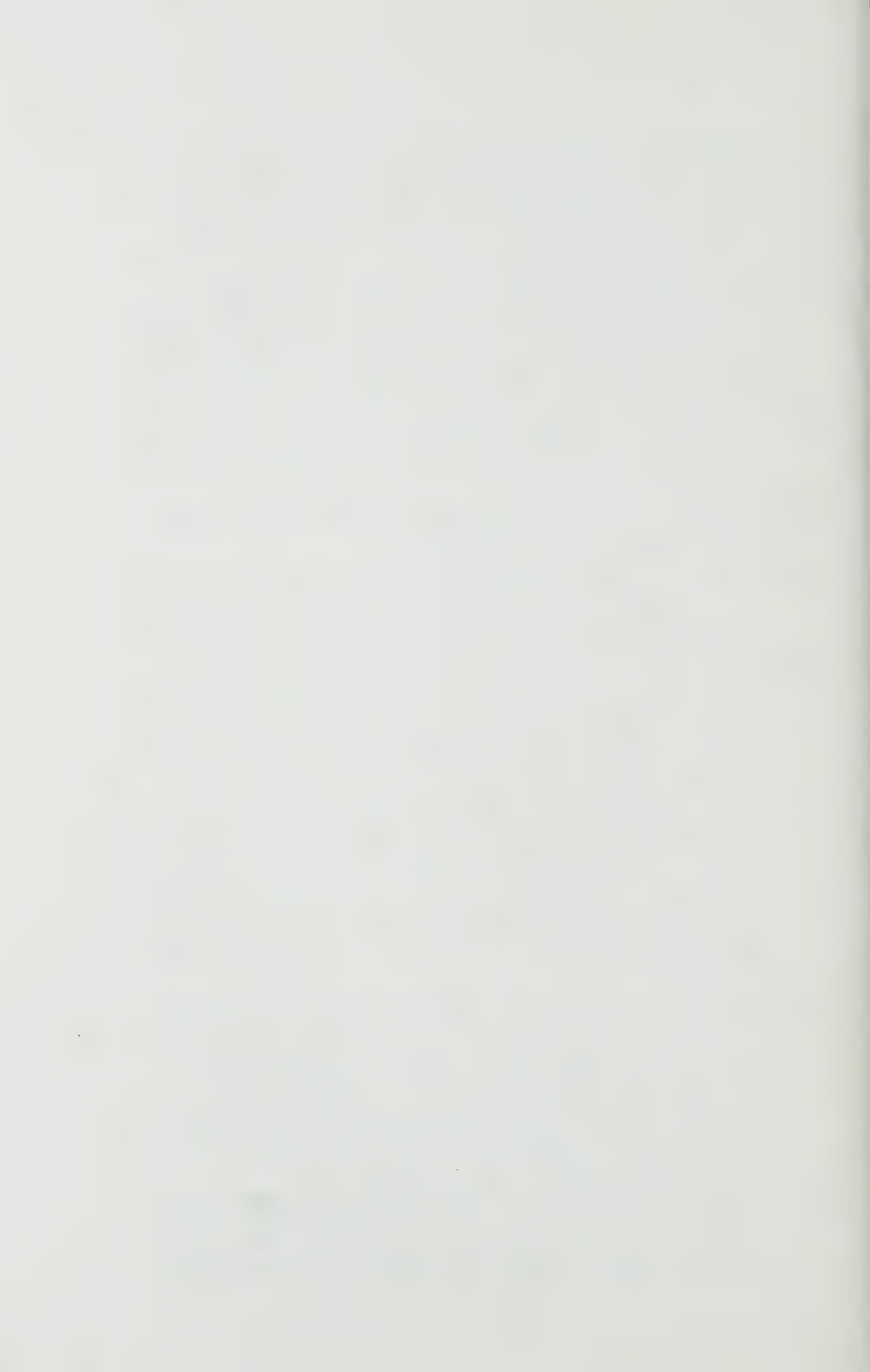
3.2.4. Examples of common definitions related to property maintenance and occupancy standards are listed below. Again, these should not be taken as being absolute and all-inclusive. The P.S.O. should feel free to suggest additions, modifications and/or changes depending on the particular nature of the condition and type of property in the municipality concerned.

- (1) Accessory Building: a detached, subordinate building not used for human habitation, located on the same lot as the main building.
- (2) Balustrade: a row of balusters or spindles surmounted by a railing.
- (3) Bathroom: a room containing at least a toilet and bathtub or shower, or two rooms which contain in total at least one toilet and one bathtub or one shower.

- (4) Building: any structure used or intended for supporting or sheltering any use or occupancy.
- (5) Committee: Property Standards Committee.
- (6) Dwelling: a building or structure or part of a building or structure, occupied, or capable of being occupied, in whole or in part for the purposes of human habitation, and this shall mean to include the land and premises appurtenant thereto and all outbuildings, fences or erections thereon or therein.
- (7) Dwelling Unit: one or more rooms connected together as a separate unit in the same structure and constituting an independent housekeeping unit for residential occupancy by humans for living and sleeping purposes.
- (8) Fire Resistance Rating: the time in hours that a material, construction or assembly will withstand the passage of flame and transmission of heat when exposed to fire under specified conditions of test and performance criteria.
- (9) Habitable Room: any room in a dwelling unit used, or intended to be used, for living, sleeping, cooking or eating purposes.
- (10) Maintenance: the preservation and keeping in good repair of a property.
- (11) Means of Egress: a continuous path of travel provided by a doorway, hallway, corridor, exterior passageway, balcony, lobby, stair, ramp or other egress facility for the escape of persons from any point within a building, floor area, room or contained open space to a public thoroughfare or approved open space.
- (12) Multiple Dwelling: a building containing three or more dwelling units.
- (13) Multiple Use Building: a building used, or capable of being used, for both residential and non-residential purposes.
- (14) Non-habitable Room: any room in a dwelling or dwelling unit other than a habitable room, and this shall mean to include a bathroom, toilet room, laundry, pantry, lobby,

communicating corridor, stairway, closet, basement, boiler room or other space for service and maintenance of the dwelling for public use and for access to, and vertical travel between, storeys.

- (15) Non-residential Property: a building or structure not occupied, or not capable of being occupied, in whole or in part for the purposes of human habitation, and this shall mean to include the lands and premises appurtenant thereto.
- (16) Occupancy: the use, or intended use, of a building or part thereof for the shelter or support of persons, animals or property.
- (17) Occupant: any person or persons over the age of eighteen years in possession of the property.
- (18) Officer: A Property Standards Officer who has been assigned the responsibility of administering and enforcing the by-law pertaining to the maintenance and occupancy of property.
- (19) Owner: the person for the time being managing or receiving the rent of, or paying the municipal taxes on, the land or premises in connection with which the word is used whether on his own account or as agent or trustee of any other person or who would so receive the rent if such land and premises were left; and this shall also include a lessee or occupant of the property who, under the terms of a lease, is required to repair and maintain the property in accordance with the standards for the maintenance and occupancy of property.
- (20) Property: a building or structure or part of a building or structure, including the lands and premises appurtenant thereto and all mobile homes, mobile buildings, mobile structures, outbuildings, accessory buildings, fences and erections thereon whether heretofore or hereafter erected; and this shall include vacant property.
- (21) Repair: the provision of such facilities and the making of additions or alterations or the taking of such action as may be required so that the property shall conform to



the standards established in a by-law pertaining to its maintenance and occupancy; all repairs shall be made in conformity with relevant existing regulations and standards and their related provisions as contained in municipal ordinances and provincial legislations pertaining to the said repair and the property to which it relates.

- (22) Residential Property: any property that is used or designed for use as a domestic establishment in which one or more persons usually sleep and prepare and serve meals; and this shall mean to include any land or buildings that are appurtenant to such establishment and all steps, walks, driveways, parking spaces, and fences associated with the dwelling or its yard.
- (23) Sewage: any liquid waste containing animal, vegetable or mineral matter in suspension or solution; but this shall mean not to include roof water or other storm runoff.
- (24) Sewerage System: the municipal sanitary sewerage system or a private sewage disposal system approved by the Medical Officer of Health.
- (25) Standards: the standards of physical condition and of occupancy prescribed for property by this by-law.
- (26) Toilet Room: a room containing a water closet and wash basin.
- (27) Yard: the land, other than publicly owned land, around and appurtenant to the whole or any part of a building and used, or intended to be used or capable of being used, in connection with the building.

3.3. Commonly Used Standards

3.3.1. As noted before and as mentioned in connection with the foregoing definitions, the following examples of common maintenance and occupancy standards should not be regarded as complete or applicable without modifications, changes and/or additions to any given municipality in Ontario. They are presented here for the sole purpose of serving as a guide for a municipality's own, and perhaps somewhat different, standards.

(1) YARDS

- a. Yards shall be kept clean and free from rubbish or other debris and from objects or conditions that might create a health, fire or accident hazard.
- b. Heavy undergrowth and noxious plants, such as ragweed, poison oak, poison ivy and poison sumac, shall be eliminated from the yard.
- c. Any vehicle including a trailer, which is in a wrecked, discarded, dismantled or abandoned condition shall not be parked, stored or left in a yard, unless it is necessary for the operating of a business enterprise lawfully situated on the property.
- d. All reasonable means shall be employed to prevent the erosion of soil in the yard.

(2) SEWAGE and DRAINAGE

- a. Sewage or organic waste shall be discharged into a sewerage system where such a system exists; where a sewerage system does not exist, sewage or organic waste shall be disposed of in a manner acceptable to the local health authorities.
- b. Sewage of any kind shall not be discharged onto the surface of the ground, whether into a natural or artificial surface drainage system or otherwise.
- c. No roof drainage shall be discharged on sidewalks, stairs or neighbouring property.
- d. Storm water shall be drained from the yard so as to prevent excessive ponding or the entrance of water into a basement or cellar.

(3) SAFE PASSAGE

Steps, walks and driveways shall be maintained so as to afford safe passage under normal use and weather conditions.

(4) ACCESSORY BUILDINGS AND FENCES

- a. Accessory buildings and fences shall be kept in good repair and free from health, fire and accident hazards.
- b. Exteriors of accessory buildings shall be kept weather resistant through the use of appropriate weather resistant materials.

(5) GARBAGE DISPOSAL

Where a municipal garbage collection service is available:

- a. Garbage, refuse and ashes shall be promptly stored in receptacles and made available for removal in accordance with the local by-law.
- b. Every building, dwelling or dwelling unit shall be provided with sufficient receptacles to contain all garbage, refuse and ashes that accumulate in the yard, dwelling and/or building.

Where no municipal garbage collection service is available:

- a. Garbage, refuse and ashes shall be disposed of in a manner that the disposal does not create a health, fire and/or accident hazard and/or that the said disposal manner complies with local by-laws.

(6) PEST PREVENTION

- a. A building shall be kept free of rodents, vermin and insects at all times, and methods used for exterminating rodents or insects or both shall be in accordance with the provisions of the current provincial Pesticides Act and all regulations passed pursuant thereto.
- b. Basement or cellar windows, used or required for ventilation, and any other opening in a basement or cellar, including a floor drain, that might permit the entry of rodents, shall be screened with wire mesh, metal grill or other durable material which will effectively exclude rodents.

(7) FOUNDATIONS

- a. The foundation walls and basement, cellar or crawl space floors shall be maintained in good repair and be structurally sound, and where necessary shall be so maintained by shoring of the walls, grouting masonry cracks, waterproofing the walls or floors and installing subsoil drains at footing levels.
- b. Every basement, cellar and crawl space in a building shall be adequately drained.

(8) OVERALL STRUCTURE

- a. Every part of a building shall be maintained in a structurally sound condition so as to be capable of sustaining safely its own weight and any additional weight that may be put on it through normal use; materials which have been damaged or show evidence of rot or other deterioration shall be repaired or replaced.
- b. All exterior surfaces shall be of materials which provide adequate protection from the weather.
- c. The exterior walls, roofs and other parts of a building shall be free from loose, rotten, warped and broken materials and objects; such materials and objects shall be removed, repaired or replaced.

(9) THERMAL INSULATION

Thermal insulation of buildings to minimize heat losses shall be done in accordance with the provisions of the Ontario Building Code where necessary and practicable.

(10) EXTERIOR WALLS

The exterior walls and their components of a building shall be maintained so as to prevent their deterioration due to weather and insects and shall be so maintained by the painting, restoring or repairing of the walls, coping or flashing, by the waterproofing of joints and of the walls themselves, by the installing or repairing of termite shields and by the treating of the soil with appropriate pesticides.

(11) ROOFS

A roof including the fascia board, soffit, cornice and flashing shall be maintained in a watertight condition so as to prevent the leakage of water into the building.

(12) DAMPNESS

The interior floors, ceilings and walls of a building shall be kept free from dampness arising from the entrance of moisture through an exterior wall or through a roof or through a cellar, basement or crawl space.

(13) DOORS AND WINDOWS

- a. Windows and exterior doors and frames and basement or cellar hatchways shall be maintained in good repair so as to prevent the entrance of wind or rain into the building.
- b. Rotted or damaged doors, door frames, window frames, sashes and casings, weatherstripping, broken glass and missing or defective door and window hardware shall be repaired or replaced.
- c. Doors and windows shall be of such a construction as to prevent drafts and minimize heat losses through infiltration of outside cold air in cold weather seasons.

(14) STAIRS AND PORCHES

Inside or outside stairs and porches shall be maintained so as to be free of holes, cracks and other defects which may constitute possible accident hazards and all treads or risers that show excessive wear or are broken, warped or loose and all supporting structural members that are rotted or deteriorated shall be repaired or replaced.

(15) EGRESS

- a. Every dwelling unit shall have a separate access so as to provide a safe, continuous and unobstructed exit from the interior of the building to the exterior at street or grade level.
- b. There shall be provided and maintained a secondary means of egress from the building for every dwelling unit located

on each floor above the first floor and for two or more dwelling units located in the basement, so as to provide a safe and convenient means of egress in case of an emergency.

- c. The means of egress and fire warning devices shall be to the satisfaction of the local Fire Department.

(16) WALLS AND CEILINGS

- a. Every wall and ceiling finish shall be maintained in a clean condition and free from holes, loose coverings or other defects which would permit flame or excessive heat to enter the concealed space.
- b. Where fire resistant walls exist between separate dwelling units, they shall be maintained in a condition which maintains their fire resistant quality.

(17) FLOORS

- a. Every floor shall be reasonably smooth and level and be maintained so as to be free of all loose, warped, protruding, broken or rotted boards or material that might cause an accident, and all defective floor boards or materials shall be repaired.
- b. The floor of every bathroom, shower room and toilet room shall be so maintained as to be resistant to water and readily cleaned.

(18) CLEANLINESS

Every floor, wall, ceiling and fixture in a building shall be maintained in a clean and sanitary condition, and the building shall be kept free from rubbish, debris or conditions which constitute a fire, accident or health hazard.

(19) WATER

Where a piped water system is available in the municipality:

- a. Every dwelling unit shall be provided with an adequate supply of drinkable running water from a source approved by the local Medical Officer of Health.
- b. Adequate running water shall be supplied to every water closet.

- c. Every sink, wash basin, bathtub or shower shall have an adequate supply of hot and cold running water.

(20) PLUMBING

All plumbing, pipes and plumbing fixtures shall be kept in good working condition and free from leaks and defects, and all water pipes and appurtenances thereto shall be protected from freezing.

(21) TOILET, KITCHEN AND BATHROOM FACILITIES

- a. Every self-contained dwelling unit shall be provided with at least one kitchen sink, water closet, wash basin, and bathtub or shower, and an acceptable means of sewage disposal.
- b. Where toilet, kitchen or bathroom facilities are shared by the occupants of residential accommodation other than self-contained dwelling units, an appropriate entrance shall be provided from a common passageway, hallway, corridor or other common space to the room or rooms containing the said facilities. The number of toilets, kitchens or bathrooms required shall be related to the number of occupants sharing the facility in accordance with the municipal by-laws.

(22) BATHROOMS AND TOILET ROOMS

- a. All bathrooms and toilet rooms should be located within, and be accessible from within the dwelling.
- b. All bathrooms and toilet rooms shall be fully enclosed and with a door capable of being closed so as to provide privacy for the occupant.

(23) KITCHENS

- a. Every self-contained dwelling unit shall contain a kitchen area equipped with a sink, served with hot and cold water where available, storage facilities, a counter top work area and space for a stove and refrigerator.
- b. Every kitchen shall have provided an adequate and approved gas or electrical or other fuel supply for cooking purposes.
- c. There shall be at least thirty inches (30") clear space above any exposed cooking surface.

(24) HEATING SYSTEMS

- a. Every dwelling shall be provided with suitable heating facilities capable of maintaining an indoor temperature of 70⁰F. for all dwelling units contained therein.
- b. The required heating system shall be maintained in good working condition so as to be capable of heating the dwelling safely to the required standard.
- c. No room heater shall be placed so as to cause a fire hazard to walls, curtains and furniture, nor to impede the free movement of persons within the room where the heater is located.
- d. Where buildings contain two or more dwelling units, fuel fired heating appliances shall be located safely enclosed or separated from the remainder of the building in conformance with the Ontario Building Code.

(25) CHIMNEYS

- a. Any heating or cooking apparatus or equipment used in the process of burning fuel or combustible material shall be properly vented to the outside air by means of a smokepipe, vent pipe or similar adequate chimney.
- b. Such heating or cooking apparatus or cooking equipment shall be properly connected to the chimney or flue by a permanently sealed connection.
- c. All connections between gaseous and liquid fuel burning appliances and equipment shall be maintained in good repair.
- d. All gaseous and liquid fuel burning appliances and equipment shall comply with the relevant provincial and/or municipal regulations.

(26) ELECTRICAL SERVICES

- a. Where available, electrical facilities complying with the requirements of the Ontario Hydro shall be provided for all residential accommodation.
- b. Existing wiring and electrical equipment shall be in good, serviceable and safe condition, as required by the Ontario Hydro.

(27) LIGHT

- a. Every habitable room, except for a kitchen, shall have a window or windows, skylights or translucent panels that face directly to the outside with an unobstructed light transmitting area of not less than ten per cent of the floor area of such rooms. The glass area of a sash door may be considered as a portion of the required window area.
- b. All public halls and stairs in multiple dwellings shall be illuminated at all times so as to provide safe passage.

(28) VENTILATION

- a. Every habitable room shall have an opening or openings for natural ventilation and such openings shall have a minimum aggregate unobstructed free flow area of three square feet.
- b. An opening for natural ventilation may be omitted from a kitchen, living room or living-dining room if mechanical ventilation is provided which changes the air once each hour.
- c. Every bathroom or toilet room shall be provided with an opening or openings for natural ventilation or a system of mechanical ventilation which operates continuously or whenever the light is turned on in the bathroom or toilet room.

(29) OCCUPANCY STANDARDS

- a. No person shall use, or permit the use of, a non-habitable room in a building for a habitable room purpose.
- b. The maximum number of occupants in a dwelling unit shall not exceed one person per 100 square feet of habitable room floor area; any child under one year of age shall not be counted when computing the number of occupants; any child over one year, but less than twelve years shall be deemed one-half person in the computation of the number of occupants.
- c. The floor area under a ceiling which is less than 7 feet high shall not be counted for the purpose of computing habitable room space.

- d. Every room used for sleeping purposes in a dwelling or dwelling unit shall provide a minimum width of 6 feet and 600 cubic feet of air space for each occupant; the corresponding floor area should be not less than 60 square feet for the first occupant and not less than 40 square feet for each additional occupant.

CHAPTER IV
PROCEDURAL ASPECTS OF
ADMINISTERING AND ENFORCING

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PROCEDURAL ASPECTS OF ADMINISTERING AND ENFORCING

4.1. Voluntary Compliance and The P.S.O. Image

4.1.1. Basically, there are two ways in which property owners respond to a "Property Standards By-law":

- (a) by voluntary compliance after being informed by the P.S.O. of deficiencies in their buildings and/or surrounding grounds; and
- (b) by being made aware of the by-law requirements as a result of having received a notice, or order to comply, or after being fined in the Provincial Court.

The first response, i.e., voluntary compliance, is the most desirable way of rectifying deficiencies and is the result of what may be called proper and skilful "administering" of the by-law. The other alternative, i.e., mandatory compliance, is a less desirable way of having deficiencies rectified, although it represents the logical and necessary sequel to the lack of voluntary compliance. It may be referred to as authoritatively "enforcing" the by-law. The frequency of resorting to "forced compliance" depends to a large degree on the P.S.O. and the manner in which he discharges his responsibilities and also on his stature in, and acceptance by, the community.

4.1.2. Records show that up to 80 per cent of property owners comply voluntarily with the requirements of the "Property Standards By-law" after having been informed by the P.S.O. of deficiencies. Why do so many owners comply voluntarily when they obviously would not undertake repairs and other maintenance actions before being approached

by a P.S.O.? The answer to this question must be that the role and function of the P.S.O. are necessary to promote and ensure compliance with the requirements of the by-law. However, it also shows that his role and function are primarily related to "administering" the by-law and only secondarily to "enforcing" it.

4.1.3. In order to achieve as high a ratio as possible of voluntary compliances, the P.S.O. must develop a wide range of knowledge and competence. As noted in various places of this Handbook, the success of the P.S.O.'s work is based on a combination of many skills, all of which should culminate in his becoming a persuasive and knowledgeable advisor to property owners. He must instill confidence by his technical competence; he must be able to communicate with ease; and yet, at the same time, he must reflect integrity by his evident determination to "enforce" the by-law if necessary; but again, the latter should be tempered by his ready willingness to provide help where he can and an understanding of the problems which an owner may have in correcting deficiencies. As noted earlier, his work and duties involve a great deal of discretion which must be based on what is commonly called "good judgement". The procedural tools of enforcement--notice, order, and court action--should become literally "a last resort" in his endeavours to obtain voluntary compliance, i.e.,

ADVISE ➡ ENCOURAGE ➡ ...ENFORCE.

4.1.4. In dealing with property owners, the P.S.O. is faced with many varying circumstances in which to display the qualities noted in the foregoing paragraphs. Essentially, this is a one-to-one situation in which the P.S.O. performs initially an educational role. He must be firm, yet sympathetic towards the owner, and he must never get angry or "mad" at him. The P.S.O. should realize that he does not do the owner any favour if he lets sub-standard work pass or overlooks certain deficiencies. The P.S.O. will develop, over time, his own techniques and approaches to achieve voluntary compliance. There is no specific, predetermined method to guide him in his conduct and dealings with property owners. All that can be said in this regard,

and what is suggested in this section of the Handbook are general guidelines and basic considerations to assist the P.S.O. in his complex work.

4.1.5. While some degree of technical competence can be achieved through formal training in a trade school or community college, most of the technical knowledge and all of the personal or human skills which are vital and essential for a successful P.S.O. come exclusively from experience. A recently completed trade school course and/or a relatively short period of work in the construction industry will not be likely to have provided the necessary exposure to the varying conditions and wide range of situations which a P.S.O. will meet in administering the "Property Standards By-law". It is preferable that a P.S.O. have several years of experience in general construction with a number of years in repair work to existing buildings. He must have learned through his own experience how to tie in new work with old construction. Many of the buildings to be inspected were built long before municipal building codes existed and, consequently, may have many outdated features or mechanical service devices the production of which has been discontinued a long time ago. Under those conditions, the P.S.O. must prove the resourcefulness and technical competence derived from experience.

4.1.6. The best training for a P.S.O. is directly derived from his work. In fact, this training and learning does not cease during the entire period of his employment as the P.S.O. of a municipality. There are two broad areas of learning that must be continuous throughout the period of his employment: (a) an intensive study of the "Property Standards By-law", which means that he must completely understand the current required maintenance standards as set out in the by-law, and (b) a thorough, up-to-date familiarization with the procedures to be followed in administering and enforcing the by-law. Although there are very few--or hardly any--situations or deficiencies which are the same or which require the same solution or approach, a P.S.O. may learn a great deal useful to his work from the practical experiences of other P.S.O.'s. Thus, it is advisable and valuable to

compare notes and discuss with other P.S.O.'s aspects of his work and particular cases. This exchange of information and experiences can be conducted informally through occasional visits with or by P.S.O.'s from neighbouring municipalities; or it can be done in a formal way through the introduction of regular study or discussion sessions. These may also provide an opportunity to invite administrators of other by-laws enacted by the municipality and related to the work of the P.S.O. such as the Fire Chief, Building Inspector, Medical Officer of Health or the Solicitor, and to have them point out various features of their work as it relates to the responsibilities of the P.S.O.

4.1.7. As noted earlier, the P.S.O. must be able to communicate both verbally and in written form. Although much of the detailed "paper work" is done in his office by the clerical staff, if any, there are many instances and aspects of his function which require him to express himself clearly and coherently in writing. Some of these aspects will be discussed in chapter five in connection with the preparation of an inspection check list (see Appendix C), his initial list or write-up of deficiencies and relevant explanatory notes on the scope of work and cost estimates. In general, his written work must be such that all information is conveyed clearly and accurately so that it can be easily interpreted by the clerical staff of his office, the property owners, contractors or builders, his supervisor, the municipal solicitor and other people involved in the many aspects of his work--and, lastly, but often most importantly, by himself. He must never forget that his written notes, comments, etc. constitute the only permanent record of his work and that he will have to rely heavily on this written information in the pursuit of his duties.

4.1.8. Closely associated with his written record, is the manner of his expression, the use of a consistent terminology and the storage of his information. The best written reports become useless to him if he cannot refer to them when he needs them. Therefore, a well organized record and information storage system must be developed, and the P.S.O. must be thoroughly familiar with it. (In other words, he should not become dependent on the clerical staff to "pull out" a

given record for him!) Frequently, a P.S.O. is asked to refer back to a particular deficiency several months, or even a year, after he actually recorded that deficiency. His ability to remember or recall what the situation was at that time will depend upon the notes and record which he had made of the deficiency at the time of his inspection and also on his ability to retrieve that information from his storage system.

4.1.9. It is difficult indeed to describe the image of what may be called a typical P.S.O.: what kind of person he should be; what types of knowledge and skills he should have; what kind of attributes he should have to achieve competence; and how he should attain a high level of voluntary compliances so as to become successful in administering the "Property Standards By-law". Some of the basic make-up and components have been mentioned in this and other sections of the Handbook. There is no precise description which will ensure the consideration of all components of his role and function. There is no definite way of listing all the qualities required of him. There is only one basic and elementary measure of his success: the higher his achieved level of voluntary compliances is, the more he will be appreciated by his office and, above all, by the community which he serves (and, by the way, the lesser will be the amount of "paper work" required in his work).

4.2. The Informal Notice

4.2.1. In the pursuit of his duties, the P.S.O. must follow the various procedural steps as set out in Section 36 of The Planning Act (see Appendix A). It is mandatory for the municipality to incorporate these steps in its "Property Standards By-law", and they will be discussed one by one in subsequent sections of this chapter. However, in addition to these procedural requirements laid down in the enabling provincial legislation, the municipality may add to, or elaborate on,

them (without altering them) and, significantly, the P.S.O., in consensus with his office, can make his own procedural or routine additions (not alterations) to them. The "informal notice", or letter, represents such a procedural addition.

4.2.2. The informal notice, or letter, of the P.S.O. to the property owner is a significant "formal" step towards voluntary compliance. While the letter may be worded in a relatively formal way to convey the seriousness of the subject matter, its major intent is one of friendly, yet determined, advice to the owner to comply with the terms of the by-law. Essentially, it should list the deficiencies and the respective required remedial actions identified by the P.S.O. at his initial inspection. The firmness of this informal notification is further strengthened by the announcement of a re-inspection at a definite date, allowing a reasonable time for "voluntary" compliance. Also, the owner can use this letter as a check list for the repairs to be completed.

4.2.3. The advantage of such informal notice, or letter, is that it is not necessary to notify the mortgage holder or any other persons having an interest in the property. Although it does not have any legal status, the reaction of many owners is positive, particularly if the letter makes a brief and rather stern reference to the authority provided in the by-law for issuing a legal, enforceable order. A suggested version of an informal notice is given on the next page. It should be noted that the heading is worded deliberately so as to contain the word "notice" and that the overall format tries to reflect a rather formal and official character. Sending the informal notice by registered mail will further increase its formality and the seriousness of the matter. There should be copies for the P.S.O. and the general file with space for entries regarding re-inspections and other related information useful for the follow-up of the case and for later references.

4.2.4. While there is no legal status attached to the informal notice, it should be realized that the very action of having approached

Example of Informal Notice

NOTICE TO OWNER

Municipal Address of property:

Date:

Owner:

Your property has been inspected, and the list below shows work required to comply with the municipal Property Maintenance and Occupancy Standards By-law.

Be advised that the by-law gives authority for the issuance of an Order, but this action is being postponed until after the re-inspection in the hope that you will comply with this request.

For any inquiries, please telephone _____.

Re-inspection will be made about _____.

Property Standards Officer

Reference to By-law Section Numbers	Action Required

the owner in this informal way with a "request" for voluntary compliance may become useful in possible later appeal or court actions. The informal notice may, under those circumstances, become a piece of evidence showing that the P.S.O. has tried his best to achieve voluntary compliance prior to resorting to the statutory means of enforcing the by-law. For this reason, it is advisable to consult with the municipal solicitor as to its form and contents. As mentioned before, if this phase of administering the by-law is handled appropriately and efficiently, the level of voluntary compliance can be increased significantly.

4.3. The Notice of Violation

4.3.1. After all his efforts to achieve voluntary compliance with the provisions of the "Property Standards By-law" have failed, the P.S.O. must switch his role from the friendly, helpful and encouraging advisor to that of a determined enforcement officer of the municipality. It must be realized that there is a certain number of property owners in every community who will not act until they receive an authoritative document telling them to do so; or, for some of them, until they are faced with court action or even after being fined. It is this group of owners to which the legal enforcement procedures of the by-law apply. And the formal Notice of Violation is the first step in this procedure.

4.3.2. There comes a time, when every P.S.O. must assume the role of an enforcement officer and when he has to cope with the legal aspects of the by-law. When this situation arises, it becomes imperative that he be thoroughly familiar with all of the correct and formal steps in his efforts to ensure compliance with the provisions of the by-law. Therefore, whereas a P.S.O. may employ all his individual ingenuity and personal "good judgment" to obtain voluntary compliance, once he is compelled to take a formal approach towards by-law

enforcement, he must rigidly follow the enforcement procedure set out in the legislation. In this context, it is advisable to remember:

- There are certain things which only a P.S.O. can do under the by-law.
- There are certain things which he must do if he is determined to ensure compliance.
- There are certain things which he cannot do, but which, if he does them, will result in his order being quashed by the Property Standards Committee or in his case being thrown out of Provincial Court by the Judge.

4.3.3. The provincial enabling legislation provides for the issuance of a formal Notice of Violation under Subsection 6 of Section 36 of The Planning Act (see Appendix A). Paraphrasing the content of this subsection, it states that the P.S.O. shall serve a Notice to the property owner and to all persons or parties having a registered interest in the property (and he may provide all occupants of the property with a copy), indicating that the building and/or grounds contain certain deficiencies and that a hearing will be held in order to discuss any questions related to the matter. It must be noted that the legislation makes definite provisions as to how and to whom the Notice is to be served, and the P.S.O. should realize that failing to adhere rigidly to these provisions may result in the quashing of his subsequent Order by the Property Standards Committee or by the Provincial Court on procedural grounds. An example of a Notice of Violation is given on the following page, without, however, the necessary appendix of a schedule ("Schedule A") in which the deficiencies, etc. are to be listed. As was suggested previously, in connection with the informal notice, the P.S.O. must consult the legal department or legal advisors of his municipality with respect to the form and phrasing of the formal Notice of Violation.

4.3.4. As noted earlier, the municipality may wish to add more specific or more detailed provisions regarding the formal enforcement procedure than is contained in the respective subsection(s) of Section

Example of Notice of Violation

Address of Owner, Occupant, etc.:

NOTICE OF VIOLATION

TAKE NOTICE THAT the property known municipally as does not conform with the standards prescribed in By-law Numberentitled "A by-law of the Corporation of the to establish standards for the maintenance and occupancy of the property in the"

AND TAKE NOTICE THAT the particulars of the non-conformity are set out on Appendix 'A' attached hereto.

AND TAKE NOTICE THAT an appearance is set before the officer onday of 19..., at the hour of o'clock in the forenoon, in

AND TAKE NOTICE THAT you or your representative may appear, make any representations and present any evidence, and that, in the event that you do not appear, an Order may be made by an officer in your absence.

AND TAKE NOTICE THAT within a reasonable time after the said appearance has taken place, an Order or Orders may be made with respect to the property

- (a) Requiring repairs to make the property conform to the standards;
- (b) Prohibiting the use of the property;
- (c) Directing the placarding of the property;
- (d) Requiring the property to be demolished;
- (e) Directing that a caution be registered on the title to the property.

AND TAKE NOTICE THAT the Order will indicate that if the repairs or clearance are not completed within the time specified in the Order, that the Corporation may carry out the repairs or clearance at the expense of the owner; and that the Order shall indicate the final date for giving Notice of Appeal of the Order.

Dated at....., Ontario this
.....day of 19.....

Property Standards Officer

36 of The Planning Act. While these provisions must be retained in the municipal by-law, they can be rearranged and defined so as to be integrated easily and logically into the local "Property Standards By-law". An example of the section of the by-law dealing with the Notice of Violation would read as follows:

SECTION ____

- (1) When an officer has reasonable grounds to believe that any property does not conform with the standards, he shall issue a notice to the owner and all persons shown by the records of the registry office, the land titles office and the sheriff's office to have any interest therein.
- (2) The notice referred to in subsection (1) hereof shall
 - (a) contain particulars of the non-conformity,
 - (b) set a date for him to appear before the officer, as prescribed by Section ____ (below),
 - (c) state
 - (i) that he or his representatives may
 - (A) appear,
 - (B) make any representations, and
 - (C) present any evidence;
 - (ii) that, in the event that he does not appear, an order may be made by an officer in his absence;
 - (iii) the action that may be taken to make the property conform to the standards, and
 - (iv) any other information that an officer deems necessary; and
 - (d) be served or caused to be served,
 - (i) by personal service, or
 - (ii) by prepaid registered mail.
- (3) An officer may provide all occupants with a copy of the notice referred to in subsection (1) hereof.

SECTION ____.

The appearance referred to in paragraph (b) of subsection (2) of Section ____ (above) shall take place not less than seven (7) days and not more than thirty (30) days after the service of said notice to the owner.

4.4. The Hearing before The P.S.O.

4.4.1. After having taken the first step in the legal enforcement procedure by sending a formal Notice of Violation to the property owner, the P.S.O. must afford the owner or any person or party who has been served with a Notice the opportunity of appearing before him to make representations in connection with the Notice and the deficiencies listed in its attached schedule (see Subsection 7 of Section 36 of The Planning Act contained in Appendix A). This appearance is usually referred to as a "Hearing", and it must be specifically mentioned in the Notice.

4.4.2. The opportunity for a Hearing is an essential part of the enforcement procedure of the by-law. The Hearing can be very useful to both the owner and the P.S.O. since it may provide the first opportunity of a meeting between them. It enables the owner to obtain information on specific deficiencies and on the extent of repairs required to obtain compliance with the standards contained in the by-law. The P.S.O. is usually able to determine through the reaction of the owner whether or not the required repairs will be carried out.

4.4.3. Frequently, the chief result of the Hearing is to have provided the owner with an emotional release (to "blow-off steam") on what he may regard as the "dictatorial nature" of the "Property Standards By-law". However, the desired and expected results of the Hearing are to ensure that (a) the owner has a complete understanding of his obligation to conform to the provisions of the by-law, and

(b) the P.S.O. inform the owner of how he should carry out his obligation. Whether the owner attends the Hearing or not, it is a required procedural prerequisite for the subsequent issuing of an Order, which is discussed in the next section of this chapter.

4.4.4. At the Hearing, the P.S.O. has a direct one-to-one relationship with the owner. Easily, this can evolve into an all-out confrontation if any hostility develops, especially on the part of the P.S.O. Even if the owner should become angry and unreasonable, the P.S.O. must remain calm and yet firm in his attitude towards the owner and in the conduct of the Hearing. The owner has the right to obtain all the necessary information so as to be able to comply with the requirements set out in the Notice, and the P.S.O. has an obligation to advise the owner in this respect, as well as of his rights and privileges as provided for in the by-law. In particular, the owner must be made aware of the fact that an Order may be issued and the respective consequences arising from it and that such Order will place definite obligations upon him which may result in penalties if he fails to comply. The P.S.O. must be aware that he is acting as both the judge and jury at the Hearing, with the possibly resulting Order being his decision as the judge.

4.4.5. It may happen quite frequently that a property owner is accompanied by his lawyer or other persons qualified to discuss certain aspects of the Notice of Violation or the by-law, or to present evidence concerning technical aspects of work noted in the schedule attached to the Notice. If the P.S.O. feels that he needs advice or assistance either of a legal or technical nature, he should not hesitate to obtain these from other municipal officials or advisors. In fact, under these circumstances, it is advisable not to conduct the Hearing without at least another person from his office present. Since the results of the Hearing will form the basis of a possible subsequent Order or may become part of a later appeal or court action, the P.S.O. should take appropriate precautions in conducting the Hearing.

4.5. The Order

4.5.1. No matter how impressively the Notice of Violation is worded and no matter how skilfully the Hearing is conducted, there will always remain a small group of property owners who do not respond to these efforts of the P.S.O. They are subject to the final step in the legal enforcement procedure to be carried out as part of the responsibilities of a P.S.O.: the issuance of an Order. As was the case with respect to the Notice and Hearing, the provincial enabling legislation sets out certain specific requirements in this regard. Subsections 7 through 10 of Section 36 of The Planning Act deal with these requirements (see Appendix A), all of which must be incorporated into the municipal "Property Standards By-law". The Order itself will become the major piece of evidence in possible later appeal and/or court proceedings before the Property Standards Committee and Provincial Court, respectively, and it must, therefore, be drawn up in full compliance with legal terminology and requirements. While the detailed wording may vary from one municipality to another and while the respective legal departments or advisors will most likely draft their own version of it, an example of an Order for general guidance is given on the next page.

4.5.2. The following is a brief summary of some of the significant points related to the issuance of an Order (for full detail, reference should be made to the respective subsections of Section 36, The Planning Act):

- When to issue the Order: the only reference in this regard is in Subsection 7 of Section 36, stating that this has to be done after the Hearing; that is if an Order becomes necessary. The municipal by-law may be more specific in terms of number of days or, as is the case frequently, may leave this to the discretion of the P.S.O. by saying "within a reasonable time after the appearance before the officer...".
- Who is to receive the Order: Subsection 7 of Section 36 notes that all those persons who have received the Notice of

Example of Order

Address of Owner, Occupant, etc.

O R D E R

PURSUANT TO A NOTICE sent to you by registered mail on the
 day of, 19..., an appearance was held on the
 day of, 19..., in the office of the Property
 Standards Officer and at the appearance

AND WHEREAS it has been established that the property known
 municipally as does not conform to the standards
 set out in By-law Number..... entitled "A by-law of The Corporation
 of to establish standards for the mainten-
 ance and occupancy of property in the City of"; the
 particulars of the non-conformity are set out in Appendix 'A' attached
 hereto.

IT IS HEREBY ORDERED THAT:

IT IS FURTHER ORDERED THAT if the repairs or clearance are not
 completed within the time specified herein, the Corporation may carry
 out the repairs or clearance at the expense of the owner;

YOU ARE HEREBY ADVISED THAT if you are not satisfied with the
 terms or conditions of this Order that you may appeal to the Property
 Standards Committee by sending a Notice of Appeal by registered mail to:

Secretary,
 Property Standards Committee,
 (Address)

within fourteen days (14) after service of the Order, and, in the event
 that no appeal is taken, the order shall be deemed to have been con-
 firmed. The final date for giving Notice of Appeal from the order is

Dated at, Ontario this
 day of, 19....

 Property Standards Officer

Violation, as provided for in Subsection 6, shall also receive the Order, i.e., "the owners of the property and all persons shown by the records of the registry office, the land titles office and the sheriff's office to have any interest therein", and, in addition, all occupants may be provided with a copy.

- What is the content of the Order: in addition to the municipal address or legal description of the property and to other points and issues mentioned in Subsection 7, the municipality may add certain items deemed necessary or desirable and related to the nature of the required remedial work noted in the Order. There should also be reference to a specific time period (usually 90 days) within which such work has to be completed, and, in case this is not adhered to, that "the municipality may carry out the repair or clearance (whichever is applicable) at the expense of the owner". The Order may also prohibit further use of the property and require the occupants to vacate it within a given period of time (again, usually 90 days). There must also be reference to the possible appeal by the owner to the Property Standards Committee noting its mailing address and "the final date for giving notice of appeal from the order".
- How must the Order be served: delivery of the Order may be made by personal service or by prepaid registered mail to the last known address of the person or persons entitled to receive it (Subsection 8). If this should not be possible, a placard must be placed "in a conspicuous place on the property...containing the terms of the...Order" (Subsection 9).
- Registration of the Order: A property may be sold after an Order has been issued, and the entire enforcement procedure will have to be done over again with the new owner, unless, however, the Order has been properly registered in the land titles or registry office. A registered Order will ensure that its obligations are properly transferred to the new

owner or party obtaining an interest in the property (Subsection 10).

4.5.3. In concluding this section, it should be emphasized again that the foregoing represents a generalized summary only. In all matters pertaining to the issuance of an Order, the P.S.O. should consult with the legal department or legal advisor of his municipality. The Order represents the last procedural step in the legal enforcement of the by-law initiated by the P.S.O. The following aspects of possible appeal and possible court action are reactions by the property owner arising from the actions taken by the P.S.O.

4.6. Appeal before The Property Standards Committee

4.6.1. An important part of the enactment of a "Property Standards By-law" is the establishment of the Property Standards Committee. The major function of this Committee is that of an appeal body to whom a property owner, who is not satisfied with the terms and conditions of the Order received from the P.S.O., can have recourse in the form of a formal appeal. Essentially, the Committee has the power to confirm, modify or quash the Order or extend the time for compliance.

4.6.2. Subsections 11 through 18 of Section 36 of The Planning Act (Appendix A) set out in a rather detailed way the various terms of the Committee's role and functions. Governed by these terms in the provincial enabling legislation, the municipality must provide for all aspects of the Committee's work in the "Property Standards By-law". Since this is a rather complex and detailed--and most significant--part of the overall enforcement procedure, the respective sections of the by-law as prepared by the City of Ottawa are reproduced below as an example and for general guidance.

Example

of a by-law section dealing with
the Property Standards Committee
(Source: By-law 183-74, City of Ottawa)

SECTION

80. (1) A Property Standards Committee is hereby established to review the orders issued by an officer upon application in accordance with Section 81.
- (2) The Committee shall be composed of three (3) ratepayers of the City of Ottawa to be appointed by the Council of the Corporation on the recommendation of Board of Control, as the terms expire, based on replies to an advertisement for three (3) ratepayers, which shall be published in the Citizen, Journal and Le Droit newspapers, having general circulation in the City of Ottawa, at least thrice.
- (3) The terms of office for the members of the Committee shall be for three (3) years with one term expiring annually so that the first appointments shall be for one, two and three years.
- (4) All members shall serve beyond their terms of office as required until reappointed or replaced by City Council.
- (5) The Committee shall:
- (a) elect a chairman from its members, and
 - (b) make provisions for a secretary of the Committee, said secretary being an employee of the Corporation other than an officer.
- (6) When the chairman is absent through illness or otherwise, the Committee may appoint another member to act as chairman pro tempore.
- (7) In the event of a vacancy in the membership of the Committee, the Council of the Corporation shall forthwith fill the vacancy on the recommendation of Board of Control based on replies to an advertisement for the ratepayer which shall be published in the Citizen, Journal and Le Droit newspapers, having general circulation in the City of Ottawa, at least thrice.
- (8) Two (2) members of the Committee shall constitute a quorum.
- (9) Any member of the Committee may administer oaths.

80. (10) A member of the Council of the Corporation or an employee of the Corporation or of a local board thereof is not eligible to be a member of the Committee, but a teacher employed by a board of education or school board is not deemed to be an "employee" for the purpose of this subsection.
- (11) The secretary shall keep on file minutes and records of all applications and the decisions thereon and of all other official business of the Committee, and Section 216 of The Municipal Act, R.S.O. 1970, C. 284, as amended, applies mutatis mutandis to such documents.
- (12) Any member may be reappointed upon the completion of his term of office provided that no member shall serve for a period exceeding six (6) consecutive years.
81. When an owner or occupant upon whom an order has been served in accordance with this by-law is not satisfied with the terms or conditions of the order, he may appeal to the Committee, 111 Sussex Drive, Ottawa, by sending notice of appeal by registered mail to the secretary of the Committee within fourteen (14) days after service of the order, and, in the event that no appeal is taken, the order shall be deemed to have been confirmed.
82. The Secretary of the Committee, in receipt of the notice of appeal referred to in Section 81, shall:
- (a) determine the date, place and time of the hearing of the appeal which shall take place not less than seven (7) days and not more than thirty (30) days from the date of receipt of the aforesaid notice; and
 - (b) give notice in writing of the date, place and time of the hearing referred to in paragraph (a) to;
 - (i) the appellant,
 - (ii) the officer who issued the order, and
 - (iii) any other interested persons who appeared at the appearance held pursuant to Section 71,
 said notice to be served personally or by registered mail.
83. (1) The Committee shall;
- (a) hold the hearing referred to in Section 82 at the date, place and time set out in the notice, and
 - (b) have all the powers and functions of an officer.
- (2) The Committee may adopt its own rules of procedure.
- (3) The applicant may appear with or without Counsel at the hearing, to present his appeal.

83. (4) The Corporation shall be represented at the hearing by the City Solicitor, or his duly authorized subordinate or assistant, who is entitled to reply to the appeal presented on behalf of the applicant.
- (5) The Committee may:
- (a) confirm the order,
 - (b) modify or quash the order, or
 - (c) extend the time for complying with the order provided that, in the opinion of the Committee, the general intent and purpose of this by-law and of the official plan of the Corporation are maintained.
- (6) The Committee shall give its decision in writing.
- (7) The Secretary of the Committee shall notify:
- (a) the appellant,
 - (b) the officer who issued the order, and
 - (c) any other person who appeared at the hearing of the appeal, of the decision, by causing a copy to be served personally or by registered mail.
84. Provision is hereby made for the payment of honoraria, as follows:
- Honoraria shall be paid to members of the Committee at the rate of Fifty (\$50.00) Dollars for each meeting attended.
85. (1) The Council of the Corporation or any owner or occupant or person affected by a decision of the Committee may appeal to a Judge of the County Court of the Regional Municipality of Ottawa-Carleton by so notifying the Clerk of the Corporation in writing and by applying for an appointment within fourteen (14) days after the receiving of a copy of the decision of the Committee.
- (2) The Judge shall, in writing, appoint a day, time and place for the hearing of the appeal and in his appointment may direct that it shall be served upon such persons and in such manner as he prescribes.
- (3) The Judge on such appeal has the same powers and functions as the Committee.
86. The order, when no appeal is taken within the time prescribed or after an appeal pursuant to Section 81 or Section 85 is completed, shall be final and binding upon the owner or occupant, whichever is applicable, who shall make the repair or effect the demolition within the time and in the manner specified in the order.

4.6.3. The Committee should be set up as soon as possible after adoption of the "Property Standards By-law". Without its existence, the P.S.O. cannot issue an Order, which makes him operate without the necessary authority vis-a-vis the property owner. Since Subsection 16 of Section 36 states that the Committee "may adopt its own rules of procedure", it becomes the responsibility of the appointed members of the Committee to decide how they wish to proceed when hearing an appeal. A very useful and relevant publication of the Ontario Government entitled "Manual of Practice on Administrative Law and Procedures in Ontario" (prepared by, and available from, the Department of Justice and Attorney General, Queen's Park, Toronto, Ontario) will be of assistance to them and also to the P.S.O. A general example of procedures to be followed by the Committee is provided on the following page.

4.6.4. At the Hearing before the P.S.O. and prior to issuance of an Order, there were two parties involved: the property owner (with or without his representatives) and the P.S.O., with the P.S.O. being in a decision-making position. At an appeal hearing before the Property Standards Committee, however, the role and position of the P.S.O. has changed, and there are three parties involved:

- (a) The members of the Committee to whom the appeal is made. They will listen to evidence, and they will decide whether or not the Order issued by the P.S.O. shall be enforced. They are the decision-makers.
- (b) The owner who is the appellant and who has decided that the Order is not correct in some respects. The owner addresses his remarks to the Committee, and he says, in effect, that the P.S.O. was wrong and that he is appealing to the Committee to correct this situation.
- (c) The P.S.O. is present before the Committee to justify the action which he has taken, namely the issuance of the Order. He must be prepared to substantiate this action, and he must answer any questions related to the aspects of the Order, including all details concerning the

Example of Procedure of Appeal Hearing
of The Property Standards Committee

INTRODUCTION

Chairman introduces members of Committee, Owner, etc., and explains composition, purpose and powers of Committee and outlines procedure to be followed.

OPENING STATEMENTS

Counsel for Property Standards Office (or P.S.O.) gives details of Order appealed from the files Order with the Committee.
Owner gives brief statement outlining the points in dispute and the reasons he feels Order should be varied.

EVIDENCE

- (a) Owner states any facts believed to be relevant and calls any witnesses he may require.
Questions by Property Standards Office (or P.S.O.).
Questions by Committee.
- (b) Property Standards Office (or P.S.O.) gives its evidence.
Questions by Owner.
Questions by Committee.
- (c) Opportunity for Owner to reply to evidence presented by Property Standards Office (or P.S.O.) with questions, if necessary, by Property Standards Office (or P.S.O.) and Committee.

ARGUMENT

- Owner
- Property Standards Office (or P.S.O.)
- Reply by Owner--"Reply" is not repetition--but an opportunity to give new evidence or argument in answer to points raised by Property Standards Office (or P.S.O.) and not considered by Owner in his original submission.

DECISION

Parties may be requested to withdraw while Committee deliberates or decision may be reserved, to be communicated to both parties in writing at a later date.

deficiencies etc. The essential role of a P.S.O. before the Committee, therefore, is to defend the action he has taken in issuing the Order.

4.6.5. The relationship between the P.S.O. and the property owner at an appeal hearing before the Property Standards Committee is significantly different from that at the Hearing before him prior to issuing an Order. At the latter, the P.S.O. was the "judge"; at the appeal, however, he is on "trial" before members of the community to defend and justify his Order, and the members of the Committee are the "judge". Consequently, the role of the P.S.O. at an appeal hearing is extremely important to him and his work in the community. He seeks confirmation and approval of his action (i.e., Order) by the Committee and also its ratification of his action and steps taken towards achieving compliance by the property owner with the terms of the by-law.

4.7. Action in The Provincial Court

4.7.1. There is a number of ways by which the enforcement action may end up in court. Most frequently, this is connected with an appeal, either by the owner or by the municipality, arising from the decision of the Property Standards Committee (see Subsection 19 of Section 36 contained in Appendix A). However, there may also be the occasion when a P.S.O., through his municipality, must bring an owner to court. When a P.S.O. gets to this stage, it is presumed that he has done everything appropriately and in accordance with the procedure of administering and enforcing the by-law. This means that he has issued an informal notice and, subsequently, a formal Notice of Violation to all persons who are entitled to same, that he has had a Hearing, that he has issued a correct Order and that there was either no appeal by the owner to the Property Standards Committee or that such appeal has been turned down by the Committee and that there was no further appeal to a judge or that such appeal was not allowed by a

judge, and, finally, that the Order has expired without the owner having complied with the terms and conditions of the Order. If all this has occurred, the P.S.O. must then prepare a letter to the solicitor of the municipality advising him of the situation and requesting him to issue a summons to the property owner for failure to carry out the Order. Following the summons which includes the date at which the owner must appear in court, the P.S.O. will be required to appear as the witness for the municipality to give evidence concerning the failure of the owner to carry out the terms of the Order.

4.7.2. Since the judge must decide a case on the basis of the facts presented to him by the parties involved, the P.S.O. should be as professional as possible and restrict his evidence to mere facts that must be accurate, adequate and no more than is essential to prove his case. His attitude toward the property owner must be absolutely impersonal and objective, and, whereas at the Hearing and later appeal his position and approach may have been persuasive, in the court his testimony must exhibit strictly factual, objective, professional competence.

4.8. Administrative and Related Aspects

4.8.1. The issuance of an Order and/or the possible appeal and/or enforcement actions before the Property Standards Committee or in court do not constitute the end of the P.S.O.'s "paper work". There is a multitude of other involvements and endeavours; they are too numerous to be mentioned here in their entirety. Some of this has been mentioned in the first section of this chapter, and a large portion of this work is connected with what may be called necessary and consistent follow-up. A number of the items or issues, but by no means all of them, are noted below in point form and not necessarily in logical or sequential order:

- A complete "life history" should be kept on each and every case with full details on all of its aspects and the relevant dates of any action taken.
- It is advisable to identify each case by its municipal address and to have it filed accordingly. A card index, alphabetically ordered by address is a convenient method of keeping an inventory of all case files.
- Since most cases require periodic attention, particularly if there are expiry dates of notices, order etc. involved, a system should be set up to ensure that they are brought forward for attention and action at, or shortly after, their expiry dates. (Note: this includes also the discharge of the Order at the Registry or Land Titles Office if and when the requirements of the Order have been satisfied; although, according to Subsection 10 of Section 36, this is the responsibility of the Clerk, the P.S.O. should keep a record of this in his files.)
- If the municipality has adopted Section 37 of The Planning Act (see Appendix A), the P.S.O. must be familiar with its terms and also with other sources of funding, for qualified purposes and qualifying persons, related to his work. Occurrences of this type should also be recorded in the case files for ready reference.
- There is a number of technical aspects, information and data which should be kept in a proper recording system for reference or comparison purposes.

4.8.2. The functions and duties of a P.S.O. are defined in the interpretation part (Subsection 1(c)) of Section 36 of The Planning Act: "Officer means a property standards officer who has been assigned the responsibility of administering and enforcing by-laws passed under the section". This simple and relatively "compact" statement reveals little of the complex and many-sided role of a P.S.O. in his community. Although much longer, more detailed and more explanatory than the definition above, this chapter of the Handbook has only "touched" on some

of the more essential components of the administration phase ("paper work") of a P.S.O. It is hoped, however, that the foregoing will be of some assistance to the P.S.O. in his busy day-to-day work.

CHAPTER V
TECHNICAL ASPECTS OF
ADMINISTERING AND ENFORCING

CHAPTER V

TECHNICAL ASPECTS OF ADMINISTERING AND ENFORCING

5.1. Major Steps in The Rehabilitation Process

5.1.1. Buildings requiring repairs, i.e., rehabilitation, in order to comply with the standards set out in a municipality's property maintenance and occupancy regulations, come in all sizes and in a wide variety of shapes. The P.S.O. cannot be expected to have a thorough knowledge of all the various types of construction, materials and components of structures. However, the building and construction terms used to describe the wide range of structural and mechanical, or service elements are fairly standard, and the P.S.O. is expected to be reasonably familiar with them. There may be local variations in some construction methods and/or materials, but generally, the basic structural elements and the mechanical features of major support systems are similar. An attempt has been made in Appendix B of this Handbook to provide the P.S.O. with a brief description of the most common and elementary structural and mechanical elements and systems which he may encounter in the course of his day-to-day work.

5.1.2. This chapter is limited to covering the major and most common technical aspects of property maintenance administration. It must be realised, however, that a systematic program of repairs related to general rehabilitation work for existing buildings usually involves a rather complex process.

5.1.3. First, there is the initial step -- inspection of a building (see Section 5.2). Here, the P.S.O. must recognize

deficiencies and non-conformities with the adopted municipal property maintenance standards. Obviously, this requires skill and a knowledge of major structural and mechanical components of the building, their interrelated functions and how the various systems (plumbing, heating, electrical wiring, etc.) are supposed to work. Since the role of the P.S.O. is to ensure compliance with the municipal property maintenance standards, he must be able and willing to provide assistance to the property owner in the correction of the identified deficiencies.

5.1.4. After having recognized and clearly identified the deficiencies, the next step for the P.S.O. is to list them in writing so that they can be readily understood by the owner and the eventual contractor who will carry out the necessary repairs to bring the deficient facilities or structural components up to the required standards (see Section 5.2). He must be aware of the fact that his initial list or write-up will provide the basis for subsequent contracts with contractors, official notices and orders and, in some cases, his major source of information in possibly ensuing appeal or legal enforcement procedures.

5.1.5. Following the listing of the deficiencies--or frequently simultaneously with it--the P.S.O. must provide a rough estimate of the scope and cost involved in the required repair work (see Section 5.3.). This aspect of his job is not only significant to the owner and the contractor, but it may become an essential input if financial assistance from the municipality under Section 37 of The Planning Act is sought by the property owner. (As noted before in chapter two, the P.S.O. does not get directly involved in a loan or grant application and its processing--he is not a loan officer--but, obviously, the actual amount of the loan and/or grant is closely related to his estimate of cost.)

5.1.6. Another aspect connected with the identification of deficiencies and their subsequent listing and the P.S.O.'s cost estimate is the contracting of the required repair work (see Section 5.4). Although the P.S.O. has no contractual relationship with either the property owner or the contractor who may be retained to carry out the repair work, he must be aware of the standard types of construction

contracts in common use, and he should advise the property owner to have some form of contract with the contractor (see Section 5.5). A frequent cause of dispute between the owner and the contractor is the lack of a clear, written agreement between them, and this lack means that neither party knows (or does not want to remember) exactly what it is the contractor is to do nor how much he is to be paid for the work.

5.1.7. The last step in a rehabilitation case is usually the final inspection of the completed repair work by the P.S.O. (see Section 5.7). While there may be a number of progress inspections--particularly if major repair works are involved or if a loan and/or grant under Section 37 has been made--normally, the P.S.O. will not make a re-inspection until he is advised that the work has been done or a notice or order has expired. If he is satisfied that the work has been completed as ordered, no further inspections are necessary. Under certain circumstances, the P.S.O. may find it justified to extend the time for the completion of the work if he finds at his final inspection that the work is progressing well but not yet fully completed.

5.1.8. Each of the aforementioned aspects and steps will be discussed in detail in the following sections of this chapter. It should be emphasized again that the rehabilitation of buildings and their surrounding grounds is a very complicated and complex process. The P.S.O. plays a key role in this process. And the most significant part of this role is his decision-making in the proper identification of deficiencies, or, in other words, which components of a property are to be repaired and how much work is needed at which cost to bring the property up to acceptable standards adopted by his municipality in the "Property Standards By-law".

5.2. Initial Inspection: The Identification of Structural and Mechanical Deficiencies

5.2.1. It is strongly suggested that the P.S.O. follow a definite pattern and sequence in his initial inspection of a property. For this purpose--and also to achieve as much consistency as possible--it is advisable to have a check list which contains all major items and elements of the structural components and mechanical systems of the building and the major features of its surrounding grounds as noted in the "Property Standards By-law". While the first draft of such a check list may not be complete, the P.S.O. should try to improve on its form and content in the course of his work and over time. This will facilitate his inspections and, at the same time, will also ensure increasing consistency in his inspections and their degree of comprehensiveness. A sample check list for general guidance--not necessarily adoption--is included in Appendix C.

5.2.2. Basically, the initial inspection can be broken down into three parts: (1) the interior of the building; (2) the exterior of the building; and (3) the surrounding grounds (which will also apply to vacant lots). The sequence in which to proceed is left to the discretion of the P.S.O. However, here again, consistency will be of great assistance. Once he has decided on a particular sequence (say, first interior, then exterior and then grounds, or the reverse), he should try to follow that sequence in his normal inspections.

5.2.3. The inspection of the INTERIOR should start at the foundation and progress upward.

(a) FOUNDATION AND BASEMENT:

- Identify the type of foundation, its condition with respect to stability, deterioration, moisture, cracks, etc., and include the basement floor in this evaluation.
- Check basement ventilation, particularly with respect to combustion air for any heating appliance. If it is a multiple dwelling, the heating system should be located in a separate room having floors, walls, ceiling and doors

with a fire resistance rating of not less than one hour and direct mechanical or natural means of supplying air to provide adequate combustion.

- Floor framing should be inspected for any sign of decay, deterioration, termites and overall soundness. In older type homes, very often the joist spacing exceeds current standards and should be noted, bearing in mind that lumber sizes have changed considerably. What commonly is referred to as a 2" x 8" wood joist, may only measure out at 1-5/8" x 7-5/8" or less, while one usually finds existing joists in excess of the standard measurement. If the existing floor framing is sound and has shown no signs of sagging over its preceding life, then there is no cause for concern. When it does become necessary to replace floor framing to ensure its structural stability, then it should be replaced in accordance with the recognized standards.
- Floor sheathing where broken, decayed or missing should be replaced.
- Beams and supporting columns also form an integral part of the superstructure and must be examined for defects and noted for correction.
- While deficiencies of the foundation and floor framing may be easily recognized, the cause may not be so apparent. It is, therefore, vital to the rehabilitation of the building that the cause be determined and corrected prior to replacing the defective components.
- When a foundation wall is found to have excessive cracks or moisture penetration, it becomes necessary to investigate more thoroughly. Was the foundation placed on footings designed to carry the load, and are the footings resting on stable soil and below the frost line? (4' is the minimum). Were foundation drains installed around the perimeter of the footings and discharged to a storm sewer or acceptable main drain? (commonly called weeping tile). Was the

foundation treated to prevent moisture penetration? (parging and waterproofing). Is the landscaping designed to drain the water away from the foundation? Is the roof drainage discharging directly to the weeping tile as is often the case in older buildings rather than to a closed drainage system? Was the foundation subjected to undue strain from heavy equipment working too close to the walls? (There are many other causes; here, only the most common ones are listed.) Contrary to many opinions, the only adequate method of correcting cracks or water penetration in foundation walls is by excavating the perimeter, repairing or replacing foundation drains, where necessary, repairing the cracks, parging, dampproofing and careful back filling.

(b) HEATING SYSTEM:

- Any mechanism or structure used in the process of burning fuel or combustible material shall be vented directly to the outside air by means of a smoke pipe, vent-pipe or similar adequate chimney and must, therefore, be examined to ensure that there is no escape of gases into the building or danger to any combustible material adjacent thereto. It should also be checked for any obstruction.
- The heating unit should be inspected to ensure that all safety devices are operative and in service.
- Piping, ductwork, fire dampers (if applicable) should be checked as well as the energy supply to the appliance.
- If necessary, an inspection by the appropriate authority having special jurisdiction over these facilities should be obtained; the resultant findings and report should then be incorporated verbatim into the P.S.O.'s write-up. (Note: should there be a later appeal or court action, the testimony of a qualified specialist will be of assistance and support to the P.S.O.'s report.)

(c) ELECTRICAL WIRING SYSTEMS:

- The most common cause of problems with electrical systems is the wiring which can be traced to the size of the service and panel box. The reason being that electrical systems in older buildings have not kept pace with the modern appliances of today. In order to offset the electrical demands of a circuit originally designed for lighting and convenience outlets for lamps, radios, and other low amperage items, it may have become necessary for the owner to insert oversized fuses and/or other improvised devices and thus create a potential fire hazard.
- It is necessary then to check the fuse panel to ensure that it is not overfused.
- Look for any fraying or bare wiring throughout the basement.
- Check for improperly spliced wire and rotted or cracked insulation.
- Check for adequate lighting; be able to see your way clearly, not only in the basement but throughout the building.
- Check for convenience outlets (laundry, freezer, motors, etc.) and their proper grounding.
- Check for extension cords being used as permanent wiring.
- The local Ontario Hydro or P.U.C. inspector should be requested to make an inspection and submit a report to the P.S.O., if this is deemed necessary.

(d) PLUMBING SYSTEM:

- Dripping taps, leaking packing glands, deteriorated sections of waterlines and waste pipes, cracked or broken fixtures, lack of sufficient water supply due to a build-up of corrosion in the piping, are the most common faults found with the plumbing system.
- The problem is not only in recognizing the deficiencies, but rather in updating the facilities to an acceptable standard. This is when it usually becomes necessary to call in the local plumbing inspector for an inspection and report to be included in the P.S.O.'s work order.

- The P.S.O. does not need to know all the specifics of the plumbing system, but familiarity with the terms and the overall components of the system are mandatory.

(e) STAIRS AND STAIRWAYS:

- Check the basement stairs for any defects in the stringers, risers, treads, etc. and their overall stability while also assuring that there is a handrail for safety.
- Check all steps that they can take the weight on the treads and risers and that the treads are of adequate width.
- Examine stairway walls for holes or other damage.
- Make sure that all stairways are well lighted.

(f) KITCHEN:

- The sink and waste pipes should be checked for cracks or leaks.
- Examine the counter tops and be concerned with the cleanliness of the kitchen. (If necessary, obtain a report from the Public Health Inspector.)

(g) BATHROOM:

- Here, plumbing is the main factor regarding the health of the householder and their family.
- Check that the bath, toilet and handbasin are properly vented and that there is no leaking from the toilet and handbasin.
- Check the enamel on all fixtures that it is not broken or in a bad state of repair.
- With the installation of new fixtures, the dry wall and the floor should be repaired.
- Make reference to detail mentioned in "Plumbing System" noted above under (d).

(h) OTHER ROOMS:

- Each room and hall should be inspected, and ceiling heights and room sizes noted.
- Start at the ceiling, inspecting for deficiencies and continue down the walls.

- Each deficiency in window casings, sash, glass, sash cords, etc. should be noted.
- Continue down walls and note bad plaster, doors, framing, hardware, etc.; do not forget the floor and floor covering.
- Examine all plumbing, electrical wiring and heating facilities and note deficiencies room by room.
- Inspection should proceed storey by storey.

(i) ATTIC:

- Inspect the access to attic.
- Upon entering the attic space, start inspection from the ceiling joists continuing upward to the roof rafters, collar ties, ridge board, etc.
- Check for insulation, defective roof sheathing, water penetration, ventilation, plumbing stacks, electrical wiring where visible and the chimney.

5.2.4. The inspection of the EXTERIOR is an integrated part of the total initial inspection and should be pursued as systematically and consistently sequential as was the case with the inspection of the interior. Although the P.S.O. is mainly concerned with structural and mechanical deficiencies of the building itself, he must be cognizant of the safety requirements for various types of buildings. For example, a single family detached house has fewer fire safety requirements than a multiple dwelling; and an office building is different in this respect from a residential structure. Thus, the following inspection hints cover only in a rather general way the various aspects and items to be included in the inspection of the building exterior.

- Inspection may start at the chimney or roof area and progress down the structure.
- Look for defects in the chimney, roof, roofing, flashings, fascia, soffit, eavestrough, downpipes, etc.
- Continuing down the structure, inspect the exterior cladding, windows, doors, etc.
- It is recommended to complete one elevation of the structure before inspecting the next, noting the length, width, height

and location, e.g., north, west, south, east. (This will prevent the necessity of retracing your steps.)

Check exterior foundation walls, sill plates and parging around the foundation.

- Pay attention to the following specific aspects: eaves-troughs should continue into the downspout and out and away from the foundation wall; shingles on the roof should not have more than three layers; brick chimneys must have adequate mortar between the bricks, and bricks must be in good condition.
- Inspect all exterior items or additions to the building such as porches, verandas, garages, sheds, etc.
- Make sure that there are safe means of egress, appropriate separations between dwelling units, adequate firewalls and firedoors.

5.2.5. The final part of the initial inspection is concerned with the GROUNDS SURROUNDING THE BUILDING. This includes the front, side and rear yards and, in case of a vacant lot, the total lot area. In some instances, there may be located accessory buildings or other structures in the yard, and they should not be overlooked in the P.S.O.'s inspection. In addition, his attention should be directed to the condition of fences, sidewalks, driveways, parking areas and garbage collection and storage facilities. Overall neatness, cleanliness and adequate weed control are some of the yardsticks of his assessment. A messy or cluttered yard has a negative effect on the property and is an eyesore to the neighbours.

5.2.6. After completion of the initial inspection, it becomes necessary to compile a LISTING OF DEFICIENCIES AND/OR NON-CONFORMITIES. With the help of his inspection check list (see sample in Appendix C), the P.S.O. must provide an accurate, concise, and precise description of the deficiencies found in the building and on the grounds surrounding it. He should specify the location by storey and room of each of these deficiencies and make reference to the appropriate section or subsection of the municipality's "Property Standards By-law". Although the

P.S.O. may wish to develop his own method and sequence of describing the deficiencies or non-conformities, it is strongly suggested that he list them by area or room, going from the basement to the attic of a building. For example:

First Storey

(a) KITCHEN:

- (1) Plaster of ceiling is broken; By-law Sec. 2.1.7.
- (2) Northeast wall has severe cracks; By-law Sec. 2.1.7.
- (3) Window glass is broken; By-law Sec. 3.1.2.
- (4) Sink waste is leaking; By-law Sec. 4.2.5.
- (5) Hardware for entrance door is missing; By-law Sec. 1.2.7.

(b) DINING ROOM:

- (1) Ceiling tiles are missing; By-law Sec. 2.2.4.
- (2) Window sash is missing; By-law Sec. 3.2.2.
- (3) Floor covering is deteriorated; By-law Sec. 2.3.2.

Frequently, the above-noted listing is combined with, or directly followed up by, a "work write-up" setting out the scope of repair or rehabilitation work required to achieve compliance with the "Property Standards By-law".

5.3. Scope of Work and Estimating Cost

5.3.1. Having recognized and listed the deficiencies, the P.S.O. should be able to provide a detailed description of the work and material required to correct them and give an estimate of the cost involved in the repair or rehabilitation work. The reliability of this portion of his function depends largely on the preciseness and detail of his deficiencies listing mentioned in the previous section. It is advisable that he make notes and take measurements of the deficiencies discovered during his initial inspection, keeping in mind the scope of the required repair work. For example, "front porch flooring is rotted; replace with new flooring to be 1-1/4" pine, approximately 100 sq. ft."

In some cases, the measurement of quantities and the selection of the type of material is more complicated than the example above.

5.3.2. Before an estimate of the scope and cost of the required work can be made, an understanding of "measurement of quantities" and "method of pricing" is necessary. These two aspects then provide the major input for the repair or rehabilitation work estimate. Actually, an estimate is an educated guess at what the work is likely to consist of and how much it is likely to cost. The confirmation of the P.S.O.'s estimate comes when he has received prices from the contractors tendering for the work, and he can compare these with his own estimate.

5.3.3. The first step in estimating is to measure the quantities of labour and material involved. In measuring quantities, it matters little exactly how they are set down or what type of lined paper is used as long as they are set down clearly and in a logical manner so that if the P.S.O. (or someone else) has to refer to them at a later date, there will be little difficulty in following them. The following two examples may show the general approach to this task.

5.3.4. The first example demonstrates the measurement of a wall and its footing together with the concrete slab as shown in Figure 5-1 and the associated calculations. The following points should be noted:

- Heading and date--It is advisable to give the job a name and possibly a Job Number so that it can be identified easily. The date also helps in case more than one estimate is made of the same job, and the P.S.O. needs to know which is the more recent estimate.
- Description and unit--Describe clearly what it is that is being measured, and set out the unit, e.g., square feet (SF), cubic yards (CY), etc., in which it is to be expressed.
- Side notes--Show how the dimensions have been arrived at, and give any necessary identification in the margin on the left of the dimensions. In the case of the concrete footing, the calculation on the left shows how the centre line of the footing (and

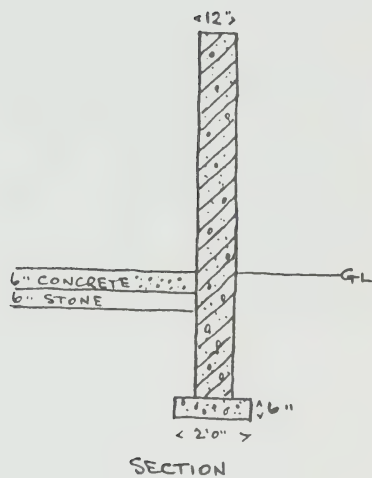
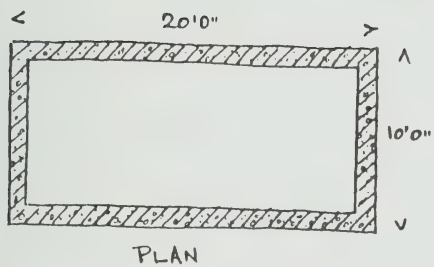


Figure 5-1 (Example No. 1)

(Associated calculations are on the following pages)

Project P.S.O. Study Session
 Job No. 75001 Date 20th August 1975 Page 1

EXAMPLE 1						B/F
3000 # Concrete in wall footing						2 CY
20.0	56.00	2.00	.50	56		
10.0						
30.0						
60.0						
41.0 = 4.0						
56.0						
Formwork to edge of footing 6" high						112 LF
		2/56.00		112		
12" Concrete block including mortar						661 No
	56.00	10.00	560			
	x 1.18 =		661			
2500 # Concrete in slab on grade						3 CY
	18.00	8.00	.50	72		
Screed concrete slab						144 SF
	18.00	8.00		144		
Cure concrete slab						144 SF
	18.00	8.00		144		

Project P.S. O. Study SessionJob No. 75001Date 20th August- 1975Page 2

Trowel Finish to concrete slab 144 SF

18.00 8.00 144

6x6 6/6 mesh reinforcing in slab 158 SF

Add for laps 18.00 8.00 144
10% 14158

6 mil polyethylene vapour barrier under slab 151 SF

18.00 8.00 144
+5% 7151

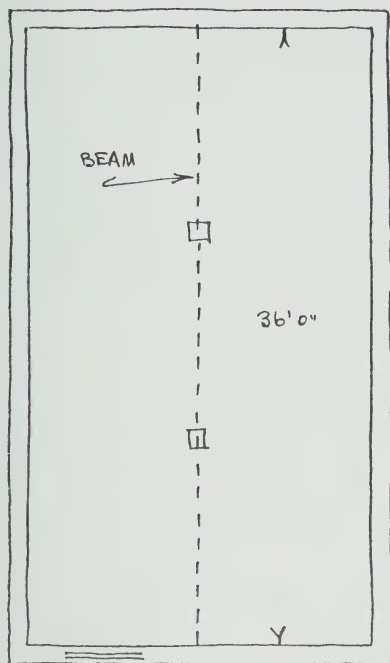
3/4" Crushed stone under slab 3 CY

Add for compaction 18.00 8.00 72
20% 1486

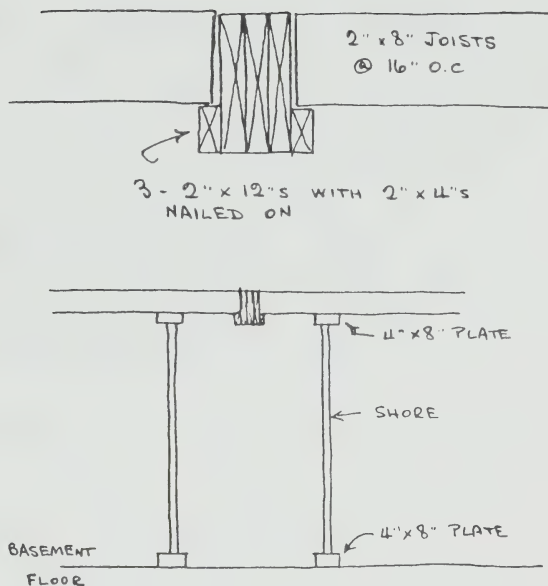
of the wall) has been determined by adding the overall dimensions in each direction, doubling, and then deducting the thickness of the wall for each external corner. Note that this only applies when the wall is of a constant thickness.

- **Dimensions**--The dimensions are set down in feet and decimals of a foot, to the nearest inch. In the example, because the paper has been specially printed, there is no need to put "x"s between the dimensions, but they may be necessary on ordinary lined or squared paper. Where a timesaving factor is required, as in the case of the formwork to the edge of the footing, this is denoted by an oblique stroke. This is because 2 is not a dimension and cannot therefore be set down as though it were, otherwise confusion might arise at a later date.
- **Calculations**--When all the dimensions have been entered, they can be calculated and reduced to square yards, cubic yards or whatever is the appropriate unit which has already been identified against the description. In the case of the concrete blocks, a multiplying factor is used to convert square feet into number of blocks. Note that the concrete is calculated to the nearest cubic yard, although greater accuracy may sometimes be necessary.
- **Waste**--This refers to material which is paid for but which ultimately ends up by not being used for one reason or another. Concrete blocks get chipped or broken, plywood has pieces cut out of it, and 2 x 4s have their ends sawn off to make them fit. Waste can either be allowed for as a percentage added on to the unit price, or it can be allowed for in calculating the quantities. In rehabilitation work, it is better to allow for waste when calculating the quantities.

5.3.5. The second example shows the measurement of 2" x 4" spruce studs in a partition 20'0" long and 8'0" high. Note that each of the measurements is identified in the left hand margin, and that when 20'0" (240") is divided by 16 (the studs are spaced 16" apart) the result gives the number of spaces between the studs to which one has to be added to give the total number of studs (see Figure 5-2 and



PLAN



SECTIONS

Figure 5-2 (Example No. 2)

Calculation:

EXAMPLE 2						11/1
		2" x 4" Spruce in stud partition			126 MBF	
Horizontal vertical		3/	20.00	60		
		16/	8.00	128		
				188		
20.0						
16) 240						
15 + 1						

associated calculation). Lumber is frequently quoted at a cost per thousand board feet. Although the quantity of 2" x 4"s in this example could have been shown as 188 linear feet (LF) and priced accordingly, the unit shown is thousand board feet (MBF). One board foot is one square foot one inch thick, and the conversion is made by multiplying together the two dimensions of the material (in this case $2 \times 4 = 8$), dividing the result by 12 ($8/12 = 2/3$), and multiply by the number of linear feet ($2/3 \times 188 = 126$) to give the number of board feet (FBM or foot board measure). 126 divided by 1000 gives .126 MBF.

5.3.6. Pricing involves the calculation of the cost of labour, materials, equipment, overhead and profit. Labour is the most difficult cost to estimate. It is broken down into two basic components: the hourly rate paid to the workmen, and their productivity. The hourly rate is the current basic rate paid in the area to which must be added such extras as fringe benefits, workmen's compensation, vacation pay, etc. In other words, the labour cost is not just the hourly payment to the men, but the hourly cost to the builder for employing them. In addition, there is usually an agreement as to the number of hours to be worked in a week. If there is any chance of overtime on a particular job, this must either be allowed for directly in the labour cost or should be added as a lump sum at the end.

5.3.7. Productivity is largely a matter of experience. A builder usually knows what output his men are capable of, but for anyone else it is a matter of judgement or reference to such books as "The Building Estimator's Reference Book" by Frank R. Walker, published by Frank R. Walker Company in Chicago. One approach to productivity is the labour constant method. A labour constant is a unit of time in which to do a particular operation. For example, Walker gives 0.8 hours as the labour constant for a carpenter hanging a door. If the carpenter costs the builder \$9.64 per hour to employ, then the cost of hanging a door will be $0.8 \times \$9.64 = \7.71 each. An alternative, and perhaps more practical, approach is the crew cost method. In this approach, it is assumed (from experience or by reference to Walker) that a crew of two carpenters will, between them, hang 20 doors a day.

Their cost per day will be 16 hours x \$9.64 = \$154.24. By simple division, the cost per door will be \$7.71. This method seems more practical because it is more easy to visualize two carpenters busy hanging 20 doors in a day than it is to visualize one carpenter labouring 0.8 hours over one door.

5.3.8. The cost of materials are comparatively easy to estimate. Most building supply houses are happy to quote the current prices of their materials (although these may sometimes be retail rather than wholesale prices); but be sure that the prices obtained include delivery to the site (or add the cost of delivery onto the price given) and that they include all taxes and duty.

5.3.9. Equipment is invariably charged out on a rental basis, whether it is owned by the builder or not. Small equipment which is used for a particular operation such as vibrators for concrete and mortar mixers for masonry mortar are usually included in the unit price. Larger equipment such as a crane which is used for hoisting most of the materials on the job is usually calculated separately and included as a site overhead cost. Remember that the cost of equipment includes not only the rental rate (which starts when it leaves the builder's yard) but also the cost of transporting it, erecting and dismantling it, the operator to run it, and the fuel and oil it consumes.

5.3.10. Overhead is of two types. There is the direct overhead such as a building permit, insurance (if required), equipment, toilets, site office and telephone, temporary hoardings, storage sheds, water, hydro and so on. These items can be estimated in the normal way. There is also the head office overhead such as office rental, heat and light, typing, etc. which is included together with profit at the end of the estimate as a percentage of the cost. A reasonable allowance to cover both types of overhead and profit is 20%, although on some jobs it may go as high as 33%.

5.3.11. One further item which should be included in the pricing aspect of an estimate, although it may not be in a contractor's estimate, is a contingency for unforeseen work, estimating errors and

the like. The size of this contingency will depend on the size of the job, its complexity, and how the P.S.O. feels generally about his estimate.

5.3.12. There are two basic approaches to pricing: cost take-off and unit pricing. Cost takeoff involves making a detailed list of all materials, labour, equipment, overhead and profit which will be required to arrive at the cost of the job. A unit price includes labour, material, equipment, profit and overhead per item of work. Unit pricing involves compiling prices from cost takeoff estimates as shown in the following examples. This method may also involve compiling prices from competitive estimates over a period of time for the same type of work. A P.S.O. will find it necessary to start by the cost takeoff method until enough information is compiled to enable him to use the unit pricing system.

EXAMPLE NO. 1 (From Cost Takeoff to Unit Price):

Replace 100 sq. ft. of 1-1/4" pine porch flooring.

Material:

100 sq.ft. 1-1/4" boards	=	125	FBM		
30% waste and matching	=	30	FBM		
		155	FBM	at .96	\$148.50
5 lbs. of nails				at .50	2.50
				Total Material	= \$151.00

Labour:

Remove 100 sq.ft. old flooring	2.5 hrs. at \$6.50	=	\$ 16.25
Remove waste material from site		=	25.00
Lay new flooring	5 hrs. at 8.50	=	42.50
	Total Labour	=	\$ 83.75
			\$151.00
			83.75
	Total Material and Labour	=	\$234.75
	20% for Profit and Overhead	=	\$ 46.95
	Total Cost	=	<u>\$281.70</u>

For future use, a unit price can be established by dividing the total cost by the number of square feet, i.e.,

$$\$281.70 \div 100 \text{ sq.ft.} = \underline{\underline{\$2.82 \text{ per sq.ft. unit price.}}}$$

EXAMPLE NO. 2 (From Cost Takeoff to Unit Price):

Formwork to edge of footing 6" high

Labour: In 100 LF

Erecting forms -

Say 60 LF per hour Carpenter

$$\frac{100}{60} = 1.67 \text{ hours Carpenter at } \$9.64 = \$ 16.07$$

$$.83 \text{ hours Labourer at } \$7.66 = 6.38$$

Stripping forms

$$.50 \text{ hours Labourer at } \$7.66 = 3.83$$

$$\text{Labour cost per 100 LF} \quad \$ 26.28$$

$$\text{Labour cost per LF} \quad \underline{\underline{.26}}$$

Material:

In 100 LF

$$2" \times 6" \text{ boards} \quad 100 \text{ LF} = 100 \text{ FBM}$$

$$2" \times 4" \text{ stakes } 1'6" \text{ long at } 5'0" \text{ o.c.}$$

$$20/1.50 = 30 \text{ LF} = 20 \text{ FBM}$$

$$\underline{\underline{120}}$$

$$\text{Assuming three uses: } 120/3 = 40 \text{ FBM}$$

$$40 \text{ FBM at } \$250.00 \text{ per MBF} = \$10.00$$

$$\text{Nails, allow} \quad \underline{2.00}$$

$$\text{Material cost per 100 LF} = \underline{\underline{\$12.00}}$$

$$\text{Material cost per LF} = \underline{\underline{.12}}$$

Unit Cost (per linear foot):

$$\text{Labour } .26 \text{ plus material } .12 = \$.38$$

5.3.13. As has already been mentioned, Frank R. Walker gives information on labour constants. He also gives information on how to build up unit prices. Unit prices can also be obtained from friendly builders, sub-contractors and manufacturers, or they can be found in two books: "Yardsticks for Costing", published annually by Southam Business Publications Limited, 1450 Don Mills Road, Don Mills, Ontario, at \$12.50; and "Building Construction Cost Data", published by Robert Snow Means Company Inc., 100 Construction Plaza, Duxbury, Massachusetts,

02322, at \$14.50. The former has a limited list of unit prices for various cities in Canada, while the latter has a large quantity of unit prices which are general averages for the whole of North America.

5.3.14. Aside from the proper measurement of quantities and the method of pricing, there is a number of more general considerations of estimating to be kept in mind. One should not forget that estimating is really doing the repair or rehabilitation work in advance on paper. This means that every operation which will take place on the site has to be visualized and put down so that it can be priced. If any one operation is overlooked, then the estimate will be too low. A large discrepancy between a P.S.O.'s estimate and a builder's quotation can be embarrassing and could be caused by a poor estimate by the P.S.O.; by a lack of competition among the builders because they are already too busy with other work; or by having asked for quotations from the wrong type of builders or contractors.

5.3.15. An estimate prepared by a P.S.O. is expected to serve two purposes: (i) to obtain some idea of what the proposed work is likely to cost; and (ii) to help protect the property owner against inflated prices. Estimating rehabilitation or repair work presents problems which are not normally found in new work. These include:

- Protection of the inhabited parts of a building where construction is not taking place. This will require tarpaulins or dust sheets to ensure that the construction work does not interfere too much with the occupants of the building.
- The amount of clean-up and rubbish removal which may be required. Every construction site should be kept clean, tidy and safe, but proportionately, rehabilitation work needs much more time spent on cleaning up and removing rubbish than is the case with new work.
- Restrictions during working hours. The property owner may place restrictions on when the workmen may or may not come onto the property, and this could cause problems with overtime work. Certainly, any restrictions which are put on the timing of the work would reduce the efficiency of the contractor.

- The presence of the homeowner. Some property owners like to supervise the work and, in so doing, can upset the builder's schedule, particularly, if they start making changes while the work is being done.
- The quantity of work. Most rehabilitation and repair work requires only small quantities of materials, and purchasing small quantities is always more expensive on a unit basis than purchasing large quantities.
- Availability of labour. Rehabilitation and repair work requires a certain type of builder who employs craftsmen with their own particular skills, different from those used on new construction. These men are not always readily available.
- Credits for salvaged material. New construction never has old material to be salvaged. With rehabilitation work, there may be some items which have a salvage value. In this case, the builder should be told in advance what is to be done with materials which he is to remove and which have a salvage value; either they are to be left on the site for the property owner's benefit, or they are to become the property of the builder in which case he should give a credit for them.
- The extent of unknown work. This is the biggest difference and the biggest problem with rehabilitation work as compared with new work. Invariably, there are unknown conditions which can only be guessed at until the actual construction starts.

5.3.16. The ways in which the P.S.O. might attempt to overcome the problems of hidden work on a rehabilitation or repair job are as follows:

- General experience with, and knowledge of, the buildings in the neighbourhood. If repair or rehabilitation work has been done in the immediate vicinity, this might provide a clue to what hidden items are likely to be encountered.
- A knowledge of the lifespan of various materials. For example, if the plumbing is of galvanized iron, it appears

to be the original plumbing in the building, and the building is about 45 years old; it is highly likely that the plumbing will have to be replaced since galvanized piping is only expected to last 25-30 years.

- Look for evidence of problems such as peeling paint on a porch which may be due to leaks in the roof; or stains on the walls caused by faults in the plumbing.
- Look for the visible parts of non-visible elements such as the wiring at outlet boxes, etc., which may give an indication of the general state of the hidden wiring.
- Open up walls or ceilings which are going to be removed anyway to see what is behind them.
- If all else fails, use a contingency in the estimate.

5.3.17. The writing of the specifications follows naturally from the estimate. If the estimate has been prepared properly it can be used as the basis for the specification, using as simple, clear and concise wording as possible. There is no need to go into great technical detail with the specification as long as it explains clearly what has to be done, where it is to be done, and the standard of quality that is to be achieved. Some prefatory paragraphs are usually needed explaining such matters as any restrictions during working hours, requirements as to electrical wiring, water, telephone, salvaged materials, building permit, and so on. However, it should be noted that the preparation of detailed specifications is the builder's responsibility; if this is done by the P.S.O., it may be regarded as a conflict of interest as he will also check the work after completion.

5.3.18. In summary, the scope of work and its estimated cost is demonstrated in the following example, which makes reference to, and is based on, Figure 5-2 of this section and its accompanying description of material calculations. It includes also a brief paragraph of specifications noted above.

Example of Estimate concerning replacement of the beam as noted in Figure 5-2 (the existing beam consisting of three 2" x 12"s spiked together with two 2" x 4" bearers spiked on to support the floor joists

has rotted and needs replacing; a convenient basement window is available for taking out the old materials and taking in the new; no heating ducts, plumbing pipes or electric wiring interfere with the work):

Take out and remove the existing built-up beam in the basement and replace with a new beam consisting of three 2" x 12" No. 1 spruce members nailed together with a 3" x 4" No. 1 spruce bearer nailed on each side to support the existing floor joists. Provide all necessary temporary shoring and shims and make good and clean-up on completion.

Sequence: Lay sole plate.

Erect shores and set top plate.

Remove existing beam.

Install new beam.

Remove shores and plates.

1. Shoring:

Rental of shores, say 16 at \$1.00	= \$ 16.00
Trucking of shores and plates to and from the job, including driver, 3 hours at \$11.50	= \$ 34.50
Use of 4" x 8" plates - 4/36.0 = 144 LF = 384 FBM 384 FBM at \$300.00 per MBF = \$115.20 Assume 3 uses and allow	= \$ 38.00
Labour unloading shores, setting in place, say 2 Labourers, 8 hours - 16 hours at \$7.66	= \$122.56
	<hr/> \$211.06

2. Replacement:

2" x 12" - 3/38.0 = 114 LF = 228 FBM at .30/FBM	= \$ 68.40
3" x 4" - 2/36.0 = 72 LF = 72 FBM at .30/FBM	= \$ 21.60
Nails, say	\$ 4.00
Labour removing existing beam and replacing, say 2 Carpenters, 12 hours = 24 hours at \$9.64	= \$231.36
	<hr/> \$325.36

3. Totals:

Total shoring	= \$211.06
Total Replacement	= \$325.36
	<u>\$536.42</u>
Add for contractor's overhead & profit, say 20%	= \$107.28
Total Cost:	<u>\$643.70</u>
Say	<u><u>\$650.00</u></u>

(Note that 3" x 4"s have been used to replace the 2" x 4"s to allow for the difference in size between the old and new 2" x 12"s, and that it is assumed that any shims required for the new beam can be taken from the old material.)

5.4. Selecting The Contractor or Builder

5.4.1. Based on his initial inspection, the list of deficiencies, work write-up and estimate of scope and cost of the rehabilitation or repair work, the property owner, with the advice from the P.S.O., has to consider how the remedial work is to be carried out. In most cases, it becomes necessary to retain the services of a builder or contractor to undertake this phase of the rehabilitation process. There might be the isolated, and relatively rare, case when the owner can do the required work. This particular aspect is briefly discussed in a separate section later in this chapter.

5.4.2. It is part of the responsibilities and functions of the P.S.O. to assist the owner in the task of selecting a competent contractor and of preparing an appropriate contract. He must make the owner aware of the fact that a firm contract arrangement be negotiated with a reliable contractor, thereby establishing a clear relationship between the two. In this way, it will be ensured that both the contractor and the owner are fully aware of the type and scope of work to be carried out and also of the cost involved in it. The P.S.O.'s assisting and advising role in this arrangement should eliminate

unnecessary delays and, above all, will create an understanding and conducive atmosphere in his relationship with owner and contractor.

5.4.3. The first step in the execution of the required rehabilitation work is the selection of a contractor. Obviously, it is essential that an adequate number of qualified contractors is available. A continuing program of rehabilitation work, and the consistent and systematic enforcement of a municipality's "Property Standards By-law", will provide a considerable volume of work and thus ensure that, over time, a sufficient contingent of contractors and/or builders take an active interest in this type of work. This, in turn, will result in the development of a body of contractors who will make this particular work their speciality. It must be realized that this cannot be achieved within a short period of time, but in the long run, there will be created quite a group of "rehabilitation experts" who will become familiar with the required procedure and the objectives of the municipal endeavours in this field and who, in themselves, will become an important, though small, element within the local economy. It has proven in the U.S.A., where this type of government initiated rehabilitation work has been in existence for some time, that considerable benefits can be derived from such activities not only for the retention of a viable building stock but also for the general local economy of the city or town.

5.4.4. It has been proven in the past that the task of obtaining a contractor is a rather difficult one for many property owners. It is, therefore, advisable that the P.S.O. or his office maintain a list of reliable and qualified contractors and builders who are readily available for rehabilitation work. When a contractor or builder applies to carry out work in this field, the P.S.O. or his office should provide him with a clearly defined set of operating procedures which can be discussed, explained and reviewed with him. Such a review or discussion will help avoid later misunderstandings when bids are submitted, work is performed and final payments are made. The compilation of a list of--or, more suitably, a card file on--contractors should include such information as: name, address and telephone number; names etc.

of regular subcontractors; his banking connections; possibly, some customer references; his main suppliers of materials; the name of his fire and liability insurance company; his registration number under the Consumers Protection Act of Ontario; and other related relevant information.

5.4.5. In the assessment of the quality and adequacy of a contractor or builder, the P.S.O. should contact the provided references to obtain an opinion on his work and general reputation and, if possible, inspect his work. The records of the Building Inspector may provide additional information on the reliability and quality of his work. In addition, his subcontractors, suppliers and bankers will be good sources of relevant information. If there is an opportunity for the P.S.O. to visit actual work in progress, this would give him a valuable clue as to the quality and efficiency of the workmanship of the contractor or builders. It must be realized that there is always the danger of the work being assigned to an incompetent and irresponsible contractor or builder; and this may happen particularly in cases where there is a number of competitors for a given job which is usually awarded to the lowest bidder. The employment of an unqualified contractor or builder could lead easily to problems and difficulties in the completion of the work; e.g., slow progress through the lack of labour and adequate equipment or through poor management; poor and inadequate workmanship through the lack of skilled labour, through the use of inferior materials, and because of insufficient and/or unqualified supervision. It must, therefore, be emphasized again that knowledge of the P.S.O. with respect to the competence, quality and reliability of contractors and builders represents an important asset in the successful performance of his duties.

5.4.6. Another aspect related to the selection of a contractor or builder is the P.S.O.'s information on their current work load. For this reason, it becomes advisable to monitor, or keep a running record of their work loads. Since there is sometimes a tendency for contractors to overload themselves, the P.S.O. should consider establishing limits on the number of jobs which a contractor can have under

construction at any given point in time. One of the important indicators of when a contractor has reached his capacity is the degree to which his current jobs are being completed on schedule. If he is falling behind on his current work, then the owner should be advised against giving him the contract for the required work.

5.4.7. Concluding this brief discussion on the selection of a contractor or builder and assuming that the aforementioned suggestions are being observed, mention should be made of various alternatives and their advantages and disadvantages in the method of actually choosing among the qualified contractors available. There is no particular way, or best way, of handling this part of the selection process; rather each job or situation must choose the method which is best suited to its circumstances and conditions.

- (a) The property owner chooses a contractor from a list provided by the P.S.O.

Advantages:

Property-owner/contractor relationship is clearly established at the start of the process. The property owner is protected by the fact that contractors have been pre-qualified by the P.S.O. Those contractors with good reputations will tend to be chosen more often.

Disadvantages:

Because this is a "sole source" method, the property owner is foregoing the possibility of a lower price as a result of bidding. The well known contractors will tend to become overloaded, and, conversely, lesser known contractors will tend not to be selected and, therefore, lose interest in rehabilitation work.

- (b) The property owner chooses three contractors who bid on the job; these three contractors are chosen from a list provided by the P.S.O.

Advantages:

This technique provides the property owner with the advantages of competitive prices. It also gives the choice of

contractor to the property owner. Further, the property owner is protected by the fact that all potential contractors have been pre-qualified by the P.S.O. or his office.

Disadvantages:

If the same contractors are selected over and over again, lesser known contractors will lose interest. The more popular contractors will tend to become overloaded.

- (c) The property owner chooses the contractor without the benefit of a list of qualified contractors provided by the P.S.O.

Advantages:

This approach clearly establishes contractor/property-owner relationship. It may increase the number of contractors involved in the rehabilitation work.

Disadvantages:

Because the contractors have not been "pre-qualified", there exists the possibility that unqualified or poor contractors will be chosen. It is a "sole source" method with the disadvantages outlined above. In some cases, the property owner will have difficulty in finding contractors to contact. The P.S.O. may then be asked to choose a contractor; this places the P.S.O. in the compromising position of selecting a contractor for the property owner.

- (d) The P.S.O. or his office puts all jobs up for bid to all contractors who have been qualified.

Advantages:

This provides for greatest possible participation by all qualified contractors. The property owner is assured of getting the lowest possible bid from a qualified contractor.

Disadvantages:

This tends to obscure the contractor/property-owner relationship. It can result in a few contractors getting most of the work.

5.5. Preparing The Contract

5.5.1. When the contractor or builder has been chosen, a written detailed agreement, or contract, must be drawn up between the property owner and the contractor or builder. As noted earlier, the P.S.O. is expected to advise, and often assist, the owner in this task since most owners are inexperienced and rather ignorant in this respect. A basic knowledge of the various items and aspects contained in a proper contract is, therefore, essential to the P.S.O.

5.5.2. The substantive base of a contract for rehabilitation or repair work is provided by the findings of the P.S.O.'s initial inspection and his resultant list of deficiencies and associated work write-up (noted at the end of Section 2 of this chapter). In other words, the contractor will be bidding on work identified and described by the P.S.O. in connection with his initial inspection. There may be cases where specific deficiencies are not discovered until the contractor has begun his work. In such cases, a written change order or supplement to the contract should be made, precisely describing the additional work required to be performed by the contractor and setting down the additional cost for that work.

5.5.3. A contract must have two (or more) parties, all of whom must be legally competent to enter into contractual relations with each other. Usually, these parties are the property owner and the contractor or builder. If the municipality is to carry out the rehabilitation or repair work, then it will be responsible for selecting the contractor and entering into a contract with him. Once the contract is signed by the parties involved, it implies that the contractor or builder has made a proposal which has been accepted by the property owner, that all parties have examined the site and are familiar with the work to be done, and that the terms of execution of the work have been established and accepted. The latter essentially includes details as to the material to be used and its cost, the amount of labour involved and its cost, the equipment to be used and any sub-charges. Permits for plumbing, electrical, structural work etc. should

be obtained and paid for by the contractor. All work performed should carry a written guarantee by the contractor for at least the period of one year, and the contract should state a definite and binding date for completion of the work.

5.5.4. In addition to the above-noted general constituent items of a contract, there is a number of specific and detailed matters which, it is suggested, are worthy of consideration:

- a specific time within which the property owner has to accept (and sign) or reject (and not sign) the contract;
- specific times within which the contractor has to begin and complete the work;
- the manner in which the contractor will be paid;
- the right of entry by the P.S.O. for purposes of progress inspections;
- the manner in which the contractor will release the property owner from possible liens;
- compliance by the contractor with relevant laws and/or codes of the municipality, including the obtaining of necessary permits;
- appropriate accident, fire and liability insurance coverage of the contractor;
- that the contractor indemnify the property owner against any accidents or damage arising out of the performance of the contractor's work;
- that the contractor will keep the premises clean and orderly during the course of the work and will remove all debris at the completion of the work;
- that the contractor will not assign the contract;
- that the property owner shall permit the contractor to use at no cost existing utilities such as light, heat, power and water necessary for carrying out the work;
- that the property owner shall cooperate with the contractor to facilitate the performance of the work, including the removal and replacement of rugs, coverings and furniture, as necessary;

- that the premises shall be vacant (or may be kept occupied) during the course of the work undertaken pursuant to the contract.

5.5.5. Most of the aforementioned general conditions and terms are, more or less, standard for most contracts. It is, therefore, advisable that the P.S.O. develop and use a form, possibly prepared in consultation with the municipality's solicitor, which form contains all the required clauses and terms. Usually, there is a general or cover part in which the parties to the contract are identified and in which reference is made to a number of "schedules" (i.e., Schedule A,B,C, etc.). These contain the specifics as related to the particular work to be performed by the contractor and commonly refer to the contractor's tender, the general conditions, the specifications and a plan. Notwithstanding the foregoing, there are several types of contracts that may be used; the most common ones are discussed briefly below.

5.5.6. Stipulated Sum--sometimes known as a lump sum contract. In this type of contract, the contractor or builder estimates the cost of the work before it is done, submits a quotation and, if it is accepted, does the work at his quoted price. Changes may be made while the work is in progress in which case their cost is negotiated and agreed, preferably in advance of the work on the change being done. With this approach, the builder accepts virtually all the risks, and the property owner should be protected against anything going wrong. It is normal to ask for competitive quotations from at least three contractors or builders. (The standard form of contract for major construction work is RAIC/CCA, Document No. 12, which sets out all the clauses for a stipulated sum contract.)

5.5.7. Cost Plus--sometimes known as a labour and material contract. In this type of contract, no figure is agreed in advance, but the contractor or builder submits his costs to the property owner periodically as the work is being done, and he is paid an agreed amount over and above his costs to cover his overhead and profit. This amount may be calculated either as a lump sum or as an agreed percentage of the cost of the work. With this approach, the property owner accepts

all the risks since he has to pay whatever the work costs, plus mark-up (the overhead and profit). Other disadvantages of this method are that the property owner does not know what his financial commitments are until the work is finished, and the contractor has no incentive to be efficient. In fact, when the mark-up is to be calculated as a percentage, it pays the contractor to be inefficient since the higher the cost the higher his mark-up is. This type of contract should be avoided whenever possible and should be used only when it is impossible for the contractor to make an estimate in advance. (The standard form of contract for cost plus work is RAIC/CCA, Document No. 13.)

5.5.8. Cost Plus with a Maximum Upset--also known as a cost plus with a target cost contract. This is similar to the ordinary cost plus contract, but the contractor or builder prepares an estimate in advance and agrees that, whatever the work costs, it will not exceed an agreed figure based on his estimate. As long as the total cost does not exceed the maximum upset figure, this type of contract operates in exactly the same way as a normal cost plus contract, but once the cost reaches the maximum upset figure the contractor has to absorb any overrun. The main improvement of this type of contract over a regular cost plus contract is that the owner knows what his maximum financial commitment could be.

5.5.9. Cost Plus with a Maximum Upset and Shared Savings--a further development of the cost plus contract. In this type of contract, the contractor or builder gives a maximum upset figure, the work is done on a cost plus basis, and there is an agreement that, if the total cost is less than the maximum upset cost, the saving will be shared on an agreed percentage between the property owner and the contractor. This has the advantage that not only does the owner know what his maximum financial commitment could be, but the contractor has an incentive to be efficient and keep the cost down provided he has not inflated his maximum upset cost. Since the intent is to provide the incentive for efficiency on the part of the contractor, care must be taken in ensuring that this efficiency is not brought about by a reduction in quality and that a distinction is drawn between credits and savings. If, for

example, the owner decides during the construction period not to renovate the bathroom, this is a credit, and the cost of the bathroom renovations should be deducted from the maximum upset price, otherwise their cost will be counted as a saving to be shared by the contractor (which is not the intent at all).

5.5.10. Management Contracts--On major projects, nearly all the work is done by sub-contractors, and the general contractor's work consists mainly of assembling sub-trade prices for his tender and co-ordinating the work of the sub-contractors during construction. In recognition of this fact, some contracts have been signed with a management contractor (usually a general contractor) to manage the work including assisting in calling bids for sub-trades and co-ordinating the work on the site. The management contractor is appointed in the early stages of the project, usually before design is completed, and drawings and specifications are prepared in the same sequence as the construction takes place. Thus, drawings necessary for calling tenders on excavation are prepared first, and a contract is awarded for the excavating work before drawings and specifications are prepared for the roofing and all the other later trades. The advantage of this method is that work can start on the site before the building is completely designed, and a lot of time can be saved in the overall period from decision to build to completed building. Its major disadvantage is that the owner does not know what his financial commitment will be until the last sub-trade tenders have been called.

5.6. "Self-help" Rehabilitation or Repair Work

5.6.1. There may be the isolated case, where a property owner is willing and capable of carrying out the necessary rehabilitation or repair work without retention of the services of a contractor or builder. This situation may occur if the owner is a qualified tradesman or builder himself or if the required repair is relatively minor and

simple. Under those circumstances, the P.S.O. may be advised to visit the property during the progress of the work so as to ensure compliance with his work write-up and/or order.

5.6.2. If a property owner should choose to carry out the required repair work himself, the P.S.O. must make him aware of the fact that the work must result in the elimination of the deficiencies so as to meet the requirements of the "Property Standards By-law". The owner should realize that his efforts may not be sanctioned in the final inspection by the P.S.O. and, consequently, will not be considered an "acceptable completion" of the prescribed repair work. Makeshift improvisations are just not good enough! And increased longevity of the building will not result from such work! Thus, the P.S.O. must use a great deal of his own discretion before accepting a "self-help" proposal by the property owner.

5.6.3. There is one other aspect worth mentioning in respect of "self-help" repair work. Many of the recognized deficiencies by the P.S.O. are related to mechanical systems, the installation and repair of which are regulated by local by-laws and/or permits. These regulations require the employment of certified tradesmen for most repair works. In cases of repairs of this type, the P.S.O. should strongly advise against the owner's resort to "self-help". In the absence of a contract with a qualified contractor, there is no recourse to a contractual agreement, and lengthy debates with the owner may result. In short, most of these "self-help" repair cases are rather cumbersome and create a lot of "headaches" for the P.S.O.

5.7. Progress Inspections and The Final Inspection

5.7.1. As noted in Section 5.1, the P.S.O. will normally not make a re-inspection until an informal notice, formal notice or order has expired. However, there are cases, which call for periodic "progress inspections"; large or major rehabilitation or repair jobs,

troubles between the property owner and contractor, reliance on "self-help" repair work by the owner, additional deficiencies discovered by the contractor or builder in pursuit of his contractual work, the work is carried out under the auspices of the municipality and a number of other reasons may require the P.S.O.'s re-visiting of a particular site. Usually, such re-visits, or progress inspections, are concerned with satisfying the P.S.O. that "things are under control" and that the work is progressing according to the schedule and terms set out in the contract. At these occasions, he may want to check that the job site is kept clean and, most importantly, that the contractor and owner are getting along with each other. If there are problems in respect of the latter, the P.S.O. should attempt to resolve them; he may call a meeting and discuss with them their differences and/or problems (i.e., he assumes for that purpose the role of a public relations officer--one of the many roles in his type of job).

5.7.2. The final inspection normally concludes the P.S.O.'s involvement in a given rehabilitation or repair work. He will assure himself on that occasion that all work has been carried out and completed in accordance with his original work write-up and subsequent notice and/or order, i.e., that the noted deficiencies have been eliminated and the property is in compliance with the maintenance and occupancy standards adopted by the municipality.

5.7.3. It is advisable--when the final inspection is made--to have the property owner sign a "clearance" form, which should be prepared by the P.S.O. or his office in advance. This "clearance" by the property owner refers mainly to the contractor and the satisfactory performance of his work. It will clear him from later liabilities with respect to damages caused by him or his sub-trades on the job site and will prevent him from being held responsible for normal wear and tear or for the owner's negligence with respect to the rehabilitation or repair work performed.

A SELECTED BIBLIOGRAPHY

NOTE: This selected bibliography of relevant publications, which should be of use to the P.S.O., lists a number of books, reports, documents, etc. selected from a publication of the Community Renewal Branch, Ontario Ministry of Housing, of May 1975, entitled "Bibliography on Community Renewal Activities". It is divided here into three parts under the headings: (A) The Rehabilitation Process; (B) Rehabilitation Technology; and (C) Property Standards.

It is suggested that the P.S.O. acquire, over time, a small reference library of publications to assist him in the pursuit of his day-to-day work. There might be the occasion when he will find such references useful, in particular, when he has to make a case before one of the appeal bodies. Aside from building up his own background knowledge about rehabilitation and repair work in his community, he may want to refer to one or the other of these references in order to substantiate or to appraise his own judgement and approach.

This Handbook cannot deal with the great multitude of matters and issues arising from a P.S.O.'s responsibilities and functions. He may find it necessary to augment the content of this Handbook with information contained in the publications listed in this Reference Bibliography.

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APPENDIX A
SECTIONS 36 AND 37 OF
THE PLANNING ACT

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(Revised Statutes of Ontario, 1970,
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Chapter 2; 1972, Chapter 118; 1973,
Chapter 168; and 1974, Chapter 53)

NOTE: This Appendix, containing Sections 36 and 37 of The Planning Act, is included in this Handbook for purposes of convenience only; for the same purpose, the constituent sub-sections are preceded by topical subheadings which do not form part of the actual Statutes. Thus, for accurate reference, recourse should be had to the Ontario Statutes.

SECTION 36 OF THE PLANNING ACT

1. Interpretation (or Definitions)

(1) In this section,

- (a) "committee" means a property standards committee established under this section;
- (b) "occupant" means any person or persons over the age of eighteen years in possession of the property;
- (c) "officer" means a property standards officer who has been assigned the responsibility of administering and enforcing by-laws passed under this section;
- (d) "owner" includes the person for the time being managing or receiving the rent of the land or premises in connection with which the word is used whether on his own account or as agent or trustee of any other person or who would so receive the rent if such land and premises were let, and shall also include a lessee or occupant of the property who, under the terms of a lease, is required to repair and maintain the property in accordance with the standards for the maintenance and occupancy of property;
- (e) "property" means a building or structure or part of a building or structure, and includes the lands and premises appurtenant thereto and all mobile homes, mobile buildings, mobile structures, outbuildings, fences and erections thereon whether heretofore or hereafter erected, and includes vacant property;
- (f) "repair" includes the provision of such facilities and the making of additions or alterations or the taking of such action as may be required so that the property shall conform to the standards established in a by-law passed under this section.

2. Adoption of Policy Statement

(2) Where there is no official plan in effect in a municipality, the council of the municipality may, by by-law approved by the Minister, adopt a policy statement, containing provisions relating to property conditions.

3. Standards of Maintenance and Occupancy

(3) If,

- (a) an official plan that includes provisions relating to property conditions is in effect in a municipality; or
- (b) the council of a municipality has adopted a policy statement as mentioned in subsection 2,

the council of the municipality may pass a by-law,

- (c) for prescribing standards for the maintenance and occupancy of property within the municipality or within any defined area or areas and for prohibiting the occupancy or use of such property that does not conform to the standards;
- (d) for requiring property that does not conform to the standards to be repaired and maintained to conform to the standards or for the site to be cleared of all buildings, structures, debris or refuse and left in a graded and levelled condition;
- (e) for prohibiting the removal from any premises of any sign, notice or placard placed thereon pursuant to this section or a by-law passed under the authority of this section.

4. Inspection

(4) When a by-law under this section is in effect, an officer and any person acting under his instructions may, at all reasonable times and upon producing proper identification, enter and inspect any property.

5. Entry Into Dwelling Place

(5) An officer or any person acting under his instructions shall not enter any room or place actually used as a dwelling without the consent of the occupier except under the authority of a search warrant issued under section 16 of The Summary Convictions Act.

6. Notice of Violation

(6) If, after inspection, the officer is satisfied that, in some respect, the property does not conform to the standards prescribed in the by-law he shall serve or cause to be served by personal service upon, or send by prepaid registered mail to the owner of the property and all persons shown by the records of the registry office, the land titles office and the sheriff's office to have any interest therein, a notice containing particulars of the non-conformity and may, at the same time, provide all occupants with a copy of such notice.

7. Contents of Order

(7) After affording any person served with a notice provided for by subsection 6 an opportunity to appear before the officer and to make representations in connection therewith, the officer may make and serve or cause to be served upon or send by prepaid registered mail to such person, an order containing,

- (a) the municipal address or the legal description of such property;
- (b) reasonable particulars of the repairs to be effected or a statement that the site is to be cleared of all buildings, structures, debris or refuse and left in a graded and levelled condition and the period in which there must be a compliance with the terms and conditions of the order and notice that, if such repair or clearance is not so done within the time specified in the order, the municipality may carry out the repair or clearance at the expense of the owner; and
- (c) the final date for giving notice of appeal from the order.

8. Mailing of Order

(8) A notice or an order under subsection 6 or 7, when sent by registered mail shall be sent to the last known address of the person to whom it is sent.

9. Substituted Service

(9) If the officer is unable to effect service under subsection 6 or 7, he shall place a placard containing the terms of the notice or order in a conspicuous place on the property, and the placing of the placard shall be deemed to be sufficient service of the notice or order on the owner or other persons.

10. Registration of Order

(10) An order under subsection 7 may be registered in the proper registry or land titles office and, upon such registration, any person acquiring any interest in the land subsequent to the registration of the order shall be deemed to have been served with the order on the date on which the order was served under subsection 7 and, when the requirements of the order have been satisfied, the clerk of the municipality shall forthwith register in the proper registry or land titles office a certificate that such requirements have been satisfied, which shall operate as a discharge of such order.

11. Property Standards Committee

(11) Every by-law passed under this section shall provide for the establishment of a property standards committee composed of such number of ratepayers in the municipality, not fewer than three, as the council considers advisable and who shall hold office for such term and on such conditions as may be prescribed in the by-law, and the council of the municipality, when a vacancy occurs in the membership of the committee, shall forthwith fill the vacancy.

12. Membership Restriction to Committee

(12) A member of the council of the municipality or an employee of the municipality or of a local board thereof is not eligible to be a member of a committee, but a teacher employed by a board of education or school board is not deemed to be an "employee" for the purpose of this section.

13. Chairmanship of Committee

(13) The members of the committee shall elect one of themselves as chairman, and when the chairman is absent through illness or otherwise, the committee may appoint another member to act as chairman pro tempore and shall make provision for a secretary for the committee, and any member of the committee may administer oaths.

14. Remuneration of Committee Members

(14) The members of the committee shall be paid such compensation as the council may provide.

15. Filing of Documents etc.

(15) The secretary shall keep on file minutes and records of all applications and the decisions thereon and of all other official business of the committee, and section 216 of The Municipal Act applies mutatus mutandis to such documents.

16. Quorum and Procedure of Committee

(16) A majority of the committee constitutes a quorum, and the committee may adopt its own rules of procedure but before hearing an appeal under subsection 18 shall give notice or direct that notice be given of such hearing to such persons as the committee considers should receive such notice.

17. Appeal to Committee

(17) When the owner or occupant upon whom an order has been served in accordance with this section is not satisfied with the terms or conditions of the order, he may appeal to the committee by sending notice of appeal by registered mail to the secretary of the committee within fourteen days after service of the order, and, in the event that no appeal is taken, the order shall be deemed to have been confirmed.

18. Decision on Appeal

(18) Where an appeal has been taken, the committee shall hear the appeal and shall have all the powers and functions of the officer and may confirm the order to demolish or repair or may modify or quash it or may extend the time for complying with the order provided that, in the opinion of the committee, the general intent and purpose of the by-law and of the official plan or policy statement are maintained.

19. Appeal to Judge

(19) The municipality in which the property is situate or any owner or occupant or person affected by a decision under subsection 18 may appeal to a judge of the county or district court of the judicial district in which the property is located by so notifying the clerk of the corporation in writing and by applying for an appointment within fourteen days after the sending of a copy of the decision, and,

- (a) the judge shall, in writing, appoint a day, time and place for the hearing of the appeal and in his appointment may direct that it shall be served upon such persons and in such manner as he prescribes;
- (b) the appointment shall be served in the manner prescribed; and
- (c) the judge on such appeal has the same powers and functions as the committee.

20. Effect of Decision

(20) The order, as deemed to have been confirmed pursuant to subsection 17, or as confirmed or modified by the committee pursuant to subsection 18, or, in the event of an appeal to the judge pursuant to subsection 19, as confirmed or modified by the judge, shall be final and binding upon the owner and occupant who shall make the repair or effect the demolition within the time and in the manner specified in the order.

21. Power of Municipality to Repair or Demolish

(21) If the owner or occupant of property fails to demolish the property or to repair in accordance with an order as confirmed or modified, the corporation in addition to all other remedies,

- (a) shall have the right to demolish or repair the property accordingly and for this purpose with its servants and agents from time to time to enter in and upon the property; and
- (b) shall not be liable to compensate such owner, occupant or any other person having an interest in the property by reason of anything done by or on behalf of the corporation under the provisions of this subsection.

22. Certificate of Compliance

(22) Following the inspection of a property, the officer may, or on the request of the owner shall, issue to the owner a certificate of compliance if, in his opinion, the property is in compliance with the standards of a by-law passed under subsection 3, and the council of a municipality may prescribe a fee payable for such a certificate, where it is issued at the request of the owner.

23. Enforcement

(23) A by-law passed under the authority of this section may impose a penalty of not more than \$500 upon an owner for each day that he is in contravention of an order that is final and binding. 1972, c. 118, s. 7.

SECTION 37 OF THE PLANNING ACT

1. Grants or Loans for Repairs

(1) When a by-law under section 36 is in force in a municipality, the council of the municipality may pass a by-law for providing for the making of grants or loans to the registered owners or assessed owners of lands in respect of which a notice has been sent under subsection 6 of section 36 to pay for the whole or any part of the cost of the repairs required to be done, or of the clearing, grading and levelling of the lands, on such terms and conditions as the council may prescribe. R.S.O. 1970, c. 349, s. 37(1); 1972, c. 118, s. 8(1); 1973, c. 168, s. 11.

2. Loans Collected as Taxes or Lien on Land

(2) The amount of any loan made under a by-law passed under this section, together with interest at a rate to be determined by the council, may be added by the clerk of the municipality to the collector's roll and collected in like manner as municipal taxes over a period fixed by the council, and such amount and interest shall, until payment thereof, be a lien or charge upon the land in respect of which the loan has been made. R.S.O. 1970, c. 349, s. 37(2); 1972, c. 118, s. 8(2).

3. Registration of Loan Certificate

(3) A certificate signed by the clerk of the municipality setting out the amount loaned to any owner under a by-law passed under this section, including the rate of interest thereon, together with a description of the land in respect of which the loan has been made, sufficient for registration, shall be registered in the proper registry or land titles office against the land, and, upon repayment in full to the municipality of the amount loaned and interest thereon, a certificate signed by the clerk of the municipality showing such repayment shall be similarly registered, and thereupon the lien or charge upon the land in respect of which the loan was made is discharged. R.S.O. 1970, c. 349, s. 37(3).

APPENDIX B
MAJOR STRUCTURAL ELEMENTS AND
BASIC MECHANICAL SYSTEMS IN HOMES

APPENDIX B

MAJOR STRUCTURAL ELEMENTS AND BASIC MECHANICAL SYSTEMS IN HOMES

NOTE: The material contained in this Appendix is largely based on, and/or taken from, "The Handbook for Housing Rehabilitation Specialists" (developed during a training program at the Massachusetts Bay Community College at Waterdown, Ma., October, 1975; George C. Rogers, Project Director).

This Appendix provides mainly definitions of structural elements, materials and processes used in house construction and brief explanations of selected major mechanical systems common in most homes. Obviously, not all structural and mechanical aspects can be covered in this brief synopsis, and the P.S.O. must develop, over time, his own knowledge of these aspects. The following material may assist him and serve as initial reference.

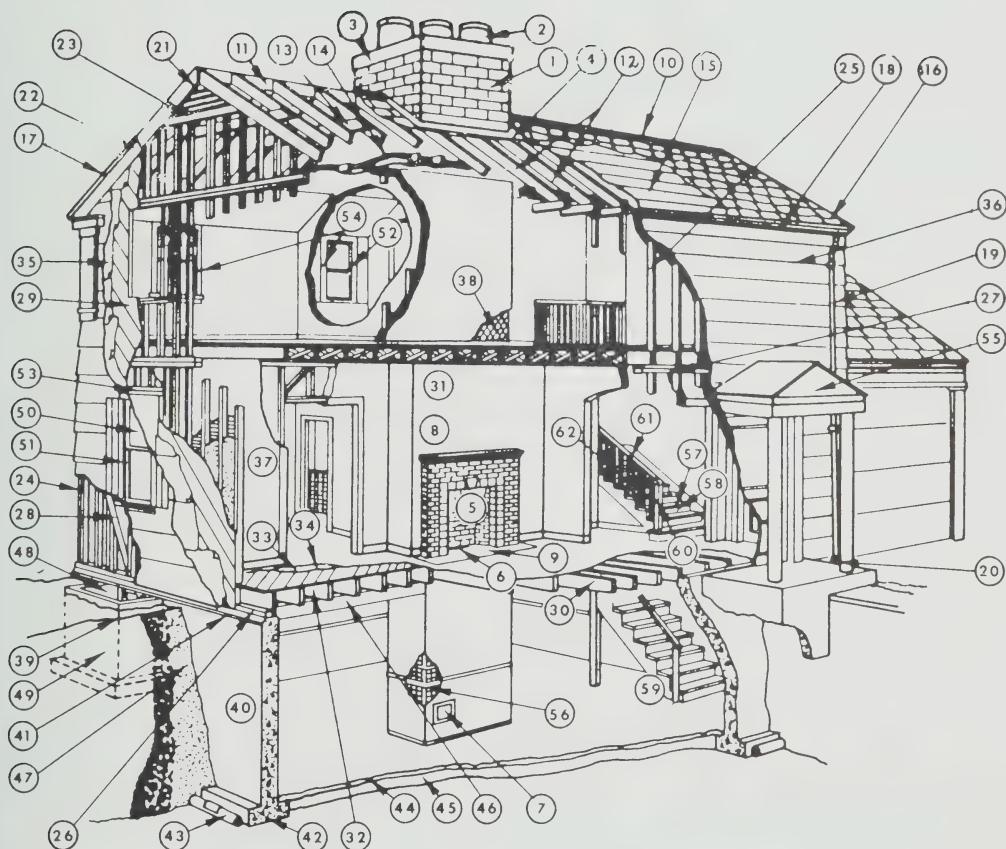


Figure B-1

Major Home Construction Elements

The numbers indicate the various construction elements as briefly defined on the following pages.

Identification of Major Construction Elements as Shown on Figure B-1

Fireplace:

1. Chimney -- You've known about this ever since Santa Claus days.
2. Flue Liner -- The flue is the hole in the chimney. The liner, usually of terra cotta, protects the brick from harmful smoke gases.
3. Chimney Cap -- This top is generally of concrete. It protects the brick from weather.
4. Chimney Flashing -- Sheet-metal flashing provides a tight joint between chimney and roof.
5. Firebrick -- An ordinary brick can't withstand the heat of direct fire, so special fire brick is used to line the fireplace.
6. Ash Dump -- A trap door to let the ashes drop to a pit below, from where they may be easily removed.
7. Cleanout Door -- The door to the ash pit or the bottom of a chimney so it may be cleaned.
8. Chimney Breast -- The inside face or front of a fireplace chimney.
9. Hearth -- The floor of a fireplace that extends into the room for safety purposes.

Roof:

10. Ridge -- The top intersection of two opposite adjoining roof surfaces.
11. Ridge Board -- The board that follows along under the ridge.
12. Roof Rafters -- The structural members that support the roof.
13. Collar Beam -- Really not a beam at all. A tie that keeps the roof from spreading. Connects similar rafters on opposite sides of roof.
14. Roof Insulation -- An insulating material (usually rock, wool, or fiber glass) in a blanket form placed between the roof rafters, for the purpose of keeping a house warm in the winter, cool in the summer.
15. Roof Sheathing -- The boards that provide the base for the finished roof.

16. Roofing -- The wood, asphalt, or asbestos shingles -- or tile, slate, or metal that form the outer protection against the weather.
17. Cornice -- A decorative element made up of molded members usually placed at or near the top of an exterior or interior wall.
18. Gutter -- The trough that gathers rainwater from a roof.
19. Downspouts -- The pipe that leads the water down from the gutter.
20. Storm-Sewer Tile -- The underground pipe that receives the water from the downspouts and carries it to the sewer.
21. Gable -- The triangular end of a building with a sloping roof.
22. Barge Board -- The fascia or board at the gable, just under the edge of the roof.
23. Louvers -- A series of slanted slots arranged to keep out rain, yet allow ventilation.

Walls and Floors:

24. Corner Post -- The vertical member at the corner of the frame, made up to receive inner and outer covering materials.
25. Studs -- The vertical wood members of the house, usually 2 x 4's generally spaced every 16 inches.
26. Sill -- The board that is laid first on the foundation, and on which the frame rests.
27. Plate -- The board laid across the top ends of the studs to hold them even and rigid.
28. Corner Bracing -- Diagonal strips to keep the frame square and plumb.
29. Sheathing -- The first layer of outer wall covering nailed to the studs.
30. Joist -- The structural members or beams that hold up the floor or ceiling, usually 2 x 10's or 1 x 12's spaced 16 inches apart.
31. Bridging -- Cross bridging or solid. Members at the middle or third points of joist spans to brace one to the next and to prevent their twisting.
32. Sub-Flooring -- The rough boards that are laid over the joist. Usually laid diagonally.

- 33. Flooring Paper -- A felt paper laid on the rough floor to stop air infiltration and, to some extent, noise.
- 34. Finish Flooring -- Usually hardwood, of tongued and grooved strips.
- 35. Building Paper -- Sometimes placed outside the sheathing, not as a vapor barrier, but to prevent water and air from leaking in. Building paper is also used as a tarred felt under shingles or siding to keep out moisture or wind.
- 36. Beveled Siding -- Sometimes called clapboards, with a thick butt and a thin upper edge lapped to shed water.
- 37. Wall Insulation -- A blanket of wool or reflective foil placed inside the walls.
- 38. Metal Lath -- A mesh made from sheet metal onto which plaster is applied.

Foundation and Basement:

- 39. Finished Grade Line -- The top of the ground at the foundation.
- 40. Foundation Wall -- The wall of poured concrete (shown) or concrete blocks which rests on the footing and supports the rest of the house.
- 41. Termite Shield -- A metal baffle to prevent termites from entering the frame.
- 42. Footing -- The concrete pad which carries the entire weight of the house upon the earth.
- 43. Footing Drain Tile -- A pipe with cracks at the joints to allow underground water to drain in and away before it gets into the basement.
- 44. Basement Floor Slab -- The 4- or 5-inch layer of concrete which forms the basement floor.
- 45. Gravel Fill -- Placed under the slab to allow drainage and to guard against a damp floor.
- 46. Girder -- A main beam upon which floor joists rest. Usually of steel, but also of wood.
- 47. Backfill -- Earth, once dug out, which has been replaced and tamped down around the foundation.

- 48. Areaway -- An open space to allow light and air to a window. Also called a light well.
- 49. Area Wall -- The wall, of metal or concrete, which forms the open area.

Windows and Doors:

- 50. Window -- That wonderful invention that lets us see through a wall.
- 51. Window Frame -- The lining of the window opening.
- 52. Window Sash -- The inner frame, usually movable, which holds the glass.
- 53. Lintel -- The structural beam over a window or door opening.
- 54. Window Casing -- The decorative strips surrounding a window opening on the inside.

Stairs and Entry:

- 55. Entrance Canopy -- A roof extending over the entrance door.
- 56. Furring -- Falsework or framework necessary to bring the outer surface to where we want it.
- 57. Stair Tread -- We put our foot down here.
- 58. Stair Riser -- The vertical board connecting one tread to the next.
- 59. Stair Stringer -- The sloping board which supports the ends of the steps.
- 60. Newel -- The post which terminates the railing.
- 61. Stair Rail -- The bar used for a hand hold while using the stairs.
- 62. Balusters -- Vertical rods or spindles supporting a rail.

B.1. Major Structural Elements

B.1.1. Forces Acting on Structures

In this section, the following terms will be defined and explained:

- Views of a building -- plan, elevation, sectional;
- Loads on a building -- dead, live;
- Forces acting on structures -- tension, compression, shear, rotation;
- Types of walls -- bearing, curtain.

In plan reading, architects and builders talk about three main views of a building: plan, elevation, and section views. A plan view looks down on a horizontal surface -- a whole property, a foundation and cellar, a floor -- showing length and width, but no vertical dimensions. Walls are usually shown as if they had been sliced away about five feet above the floor level, thus showing the openings for most windows. An elevation view shows only vertical and horizontal dimensions, emphasizing vertical surfaces, primarily walls. A section view shows interior components as they would look if they had been sliced through and you were looking perpendicular to the cut. These can be in horizontal or vertical sections and are used to show arrangements of components not otherwise visible. Details of window casings and framing are often presented in section views.

Dead load is the weight of the structure itself. The building must first support its own weight before it can take the weight of furniture and people. Keep this in mind the next time you call for drywalling over existing plaster, as this almost doubles the plaster weight carried by the building. Live load is the additional weight of furniture, appliances, and people, and is called "live" because it is not fixed in any one place but can move around. When the piano is shifted from between the windows to against the hall wall, the house "feels" and reacts to the change in location of the weight. An empty house is carrying no live load.

Tension in structure is a bit like tension headaches, a lot of stretching. Place a pencil across the top of a glass and push down on the middle of the span. The pencil bows downward. The bottom side of the pencil is stretched; it is under tension. Those fibers tend to pull apart. If you push hard enough, a split will start on the bottom side of the pencil. Beams, joists, and floors respond in this same way. When they are loaded between points of support, they tend to deflect (bend) downward and to split where the greatest tension (stretching) occurs. Some building materials can stand (and recover from) tension more than others. For instance, how do steel cable and brick compare?

Compression is squeezing. The top side of your pencil tends to shorten up in the demonstration above. If you press it far enough, what may happen to the paint on the top surface? Joists and girders respond in the same way. When supported at both ends and loaded in the middle, the joist bends downward, compressing the fibers in the top third of its depth and stretching the bottom third. To maintain the carrying power of any structural member, never pierce, cut, or notch it in the top or bottom margins. If a 2" sink drain has to go through, be sure that it goes through the middle third of the depth of the joist. How do steel cable and brick compare in ability to stand compression?

Shear forces are those tending to slice a member apart. As a demonstration, unwrap a bar of chocolate and put its length half on your desk and half off. Press down on the other end. You are exerting a shearing force, one tending to snap off or break off the unsupported section. This tendency is present in all structural members unless they are supported throughout their length.

Rotational forces tend to turn structural members. A beam may twist in drying and not stay loaded evenly. As you look at the end of the beam, it may be tilted and may continue to roll, as if the top were turning about the bottom edge. This comes from a side or lateral force which the beam is unable to resist. Here is a reason for bridging between joists. Think also of the back porch that slopes away from the house. Its outer piers have settled and the porch tends to rotate downward around the edge affixed to the house.

Bearing walls are those which carry some portion of the weight above them. They support more than their own weight and therefore have a structural purpose. (They may also contain mechanical services.) These are expensive to move because the load they carry must be borne by some other means.

Curtain walls carry no weight and could be replaced by a curtain. They are to divide one space from another, to serve as sound barriers, and to contain mechanical components. But they do not carry any weight of the structure above. Usually they can be altered with less risk to the structure than can bearing walls.

B.1.2. Classification of Wood

The basics of carpentry and framing must begin with the main material used in older houses -- wood. The kind of wood used in the structural members may be almost as important as the method of framing itself. Varieties of wood may be classified by these guidelines:

- Framing: Douglas Fir, Southern Yellow Pine, Eastern Spruce, White Fir, and Hemlock
- Sheathing: Douglas Fir, White Fir, Hemlock Pine (North, South, or West), Spruce, Redwood, and Poplar
- Subfloor: Douglas Fir, Southern Yellow Pine, Spruce
- Flooring: Hard Maple, Red or White Oak, Walnut, Fir, and Yellow Pine
- Millwork: Pine, Beech, Birch, Hemlock, Maple
- Siding: Cedar, Cypress, Fir, and North, South, or West Pine
- Sash: Soft Pine, Redwood, or Cypress
- Trim or Finish: Cedar, Pine, Poplar, Redwood on exterior, and Oak, Spruce, Pine, Poplar, and Walnut on interior trim.

The above classification is based on how well the particular variety of wood can be used for the particular purpose. Qualities such as supply, cost, milling and forming characteristics, strength, resistance to deterioration, and finishing factors are taken into consideration.

Wood can also be classified according to the size of the piece:

- Timber is lumber with a minimum dimension of five inches and includes mechanical or epoxy-resin connected pieces, formed into timber.
- Lumber is wood that has been cut, trimmed, and sometimes shaped. The standard 2" x 4" (with actual dimensions 1-5/8" x 3-5/8") is classified as lumber.
- Millwork, sometimes referred to as "finish", includes doors, windows, panel or cabinet work, moldings, or other manufactured or shaped wood products.

B.1.3. Connectors

Timber and lumber are connected by nails, screws, bolts, or timber connections, and by dowels. Three-storey frame buildings over 75 years old may contain mortise and tenon connections in the framing. Multistorey masonry buildings containing interior wood framing, floors, and partitions may contain metal connectors such as angle irons, timber "dogs" (an iron rod with a short right angle at each end embedded into the abutting timbers to tie them together), split ring connectors between overlapping framing members, and, on very old buildings, wood dowels which pierce one or more framing members in order to join them.

For the most part, the conventional framing methods and systems of connection in use today utilize the same type of fasteners that have been used over the last six decades -- nails, screws, and bolts. These may be further classified as:

- Common nails, spikes and cut nails, lath and roof nails, and finish nails
- Wood screws, lag screws
- Carriage bolts (round head and square nut), machine bolts (all "round" shank with square nuts), drift bolt (simply a hand-driven pin), and toggle bolts (after insertion, head expands and grabs).

B.1.4. Rough and Finish Carpentry

Rough carpentry deals with the framing of structures, i.e., walls, partitions, floors, openings for doors and windows, stairs, and roofs. Finish carpentry would include trimming and finishing items such as moldings, baseboard, casing and hanging doors and windows, stairs, floors, and cabinet work. Exterior trim may be classified as either rough or finish carpentry, depending on the type, method of installation, and material used.

B.1.5. Framing

Two construction methods using lumber and timber materials will be discussed: namely, ordinary and wood frame construction.

Ordinary construction, also called "light wood and masonry construction", combines a system of masonry bearing walls, with floors, partitions, and roof of wood. The fire qualities of buildings of this type usually get a rating of two hours resistance to the spread of fire.

Most masonry walls are at least eight inches thick, although in multistoried buildings the lower floors contain substantially thicker walls. The floor joists (see #30 of Figure B-1) at each floor bear on the wall and are anchored to it to lend it some horizontal support. The end of each joist is cut back slightly at the top so that in the event of fire, the falling timber will not rupture the wall. This is commonly called a "fire cut".

Interior bearing partitions are constructed of wood studs (see #25 of Figure B-1), with appropriate bridging and firestopping. Bearing walls should be firestopped at least once in every eight feet of height. The firestopping placed halfway in the height of the wall may also retard the effort of electricians pulling new wires through or of an insulator blowing granular insulation into the wall during the course of a rehabilitation or repair job. Openings in bearing partitions over windows and doors are "trussed" with diagonals at the header to transfer the weight to either side of the opening.

In older houses, bridging (see #31 of Figure B-1) was placed between floor joists to add strength to the middle of the span and to reduce any tendency of a timber to twist.

In contrast to light wood and masonry construction, wood frame construction uses only wood materials for framing, sheathing and finishing. The most common types are western or platform framing, brace framing, and balloon framing. All three have advantages and/or disadvantages that tend to balance out. The braced frame method, however, combines the better qualities of both platform and balloon framing.

In the western, or platform, framing method, the entire first floor is constructed with pre-cut studs and joists. Upon completion of the first floor framing, a platform exists from which to repeat the process for the second floor. Subfloors (see #32 of Figure B-1) are usually laid on an angle of 45 degrees to the floor joists to add rigidity to the frame. For added structural and wind brace value, the wall sheathing boards (see #29 of Figure B-1) are sometimes nailed at a 45-degree angle to the studs. The major drawback in platform framing is the amount of shrinkage and settlement caused when the lumber and timber dry out.

Balloon framing is probably the most expensive method of house framing, but is the one system that results in an absolute minimum of shrinkage. This system has continuous wall studs from sill (see #26 of Figure B-1) to second floor headers or double plate (see #27 of Figure B-1). The second floor joists are nailed to the sides of the "two storey" studs and a "ledger" board is cut into the stud below the joist to give added structural support to the joist.

Brace framing is very similar in method to the platform frame, with the major difference being the installation of the wall studs. In brace framing, the wall and partition studs bear directly on the sill or center girder and are spiked to the floor joists. At the second floor, the studs bear directly on the double plate of the wall or partition below and are spiked to the second floor framing joists.

The amount of shrinkage in this method is considerably reduced because the intersection of the stud and joist combines both a vertical and horizontal wood grain which tends to neutralize the shrinking process.

Wind bracing, firestopping, bridging, sheathing, subflooring, and openings are installed in similar ways for all three framing methods. Double joists should be found under bearing walls and around floor openings for stairs and chimneys. Piercing of walls usually calls for doubling of studs about windows and door openings.

Sheathing is the covering applied to the outside of a frame. Sheathing can be used for strength purposes, to add rigidity to the wood frame wall, or to insulate the wall or supply a base for the attachment of masonry or other weathering surfaces. The three most common types of sheathing are lumber, fiber or manufactured boards or panels, and plywood.

B.1.6. Roofs

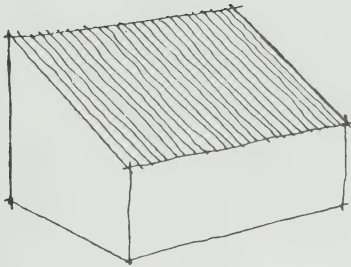
Roofs may be classified by type and configuration, as follows: flat, shed, gable, hip, gambrel, mansard, deck mansard, and saw tooth (see Figure B-2). Roof framing is usually a combination of members constructed so that a slope of some sort will result and cause rain or snow to run off. Some of the more common roof framing members are:

Rafter: The structural (usually angled with the horizontal) member that spans from the top of the exterior wall to the center board at the top of the roof (12)

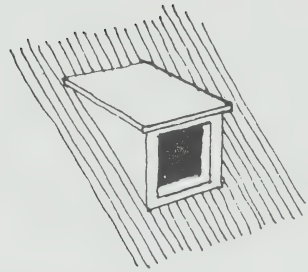
Ridge or Ridge Board: Top of roof, board that acts as center line or joiner for rafters (11)

Plate: Doubled up 2 x 4 that forms the top of the outside wall and the bearing point for the rafters.

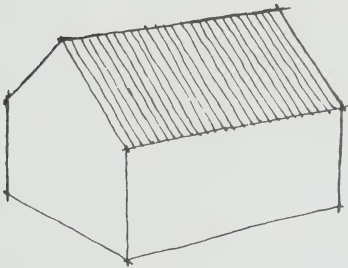
Hip, Valley, Valley Jack, Cripple Jack, Hip Jack, Rafter:
Terms used to describe various roof framing members used to change direction or pitch in a sloped roof.



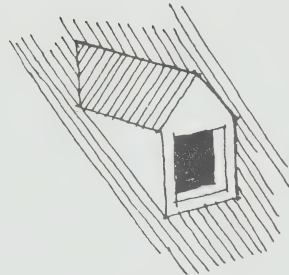
SHED ROOF



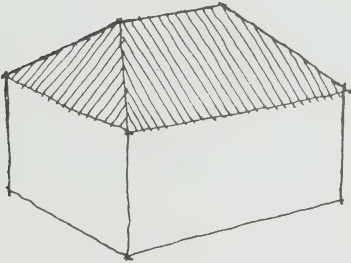
SHED DORMER



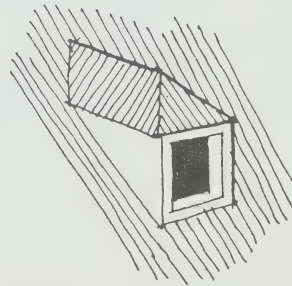
GABLE ROOF



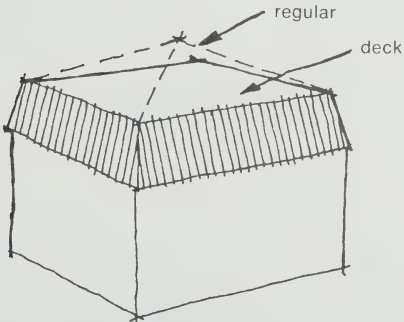
GABLE DORMER



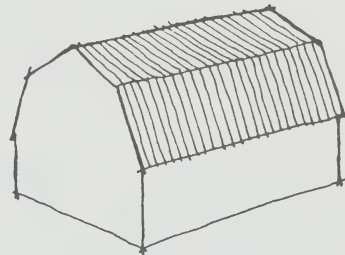
HIP ROOF



HIP DORMER



MANSARD ROOF



GAMBREL OR DUTCH
BARN ROOF

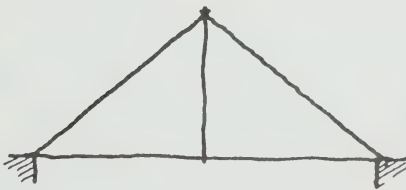
Figure B-2
Common Roof and Dormer Types

Gable: The end of a common or commonly framed roof (21)
Sheathing: Same as wall sheathing except that it applies to the roof in this case (15).

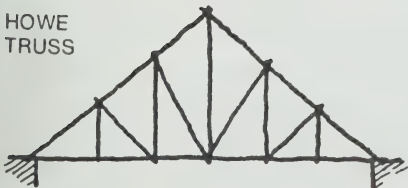
Dormers are sloping roof projections for windows or ventilation. In general, they follow the same shape as the main roof. Dormers can be small enough to contain one or more windows, or large enough to supply additional "head-room" for living space under the roof framing.

Trusses: The P.S.O. will not encounter very many roof trusses in the course of his work, but they are mentioned here simply to cover the one or two instances where they may occur. A truss is a combination of structural members fastened together in the vertical plane in order to transfer a load over a large opening or span. The truss has several major parts: top and bottom chords, web members called struts and ties, and panel points where all of these come together. The most common type of truss in house construction is a variation of the King Post truss (illustrated in Figure B-3). Repair of a damaged truss is extremely ticklish work requiring the opinion of an experienced carpenter. Various stresses and strains exist in a truss and if one member

KING POST
TRUSS



HOWE
TRUSS



PRATT
TRUSS



Figure B-3

Most Common Truss Types

is disturbed, it will affect the entire truss. For instance, the top chord assumes a stress of compression while the bottom chord is usually in tension. Intermediate struts and ties are either in tension or compression depending on their location, position, and loading.

Flashing: This is a waterproof, sheet metal wearing surface installed where roof planes intersect, or where vents, chimneys, skylights, or walls pierce a roof. This is a critical item of inspection during the rehabilitation survey. Roof leaks are difficult to detect because water may enter the roof at one location, travel along the rafters, and terminate on a ceiling or wall several feet from the leak. Visual inspection of flashing may disclose deterioration and require a recommendation to replace the faulty flashing with copper, zinc, or lead flashing.

Roofing: This is defined as the covering applied to roof framing and sheathing. Roofing can be classified by the following systems or materials (see #16 of Figure B-1):

- Shingles -- wood, asphalt, cement, asbestos.
- Composition -- roll or paper roofing.
- Built-up -- a combination of felt paper and bituminous coating.
- Galvanized iron or steel or corrugated metal or aluminum.
- Clay tile or slate.

Most asphalt shingles are manufactured from a combination of heavy felt saturated with asphalt, covered on the weathering surface by crushed slate or other abrasive material. The weathering surface of asphalt shingles is usually colored to give a variety of design and aesthetic possibilities.

The common term for asphalt shingles is "strip shingles". These are applied in horizontal courses so that the amount of shingle exposed to the weather will allow a lap of at least two inches over the upper end of the second shingle underneath. Asphalt shingles are applied to a roof where the slope is not less than four inches per foot. Otherwise the roof would approach the category of "flat roof"

or "shed roof" and wind and water would penetrate beneath the shingles. Roll roofing is used on relatively flat surfaces and is nailed at the leading edge to prevent the wind from picking it up.

B.1.7. Partitions

Partitions can be interior, bearing, or non-bearing walls usually of 2 x 4 wood stud construction. Partitions may be covered with wire or rock lath and plaster, gypsum board (drywall), fiberboard, or plywood.

Drywall construction is most common in modern residential construction. It avoids the mess, water, and weight usually associated with a "mud" or wet plaster job. The most common type of drywall system is sheetrock, which is a gypsum product sandwiched between paper coverings.

B.1.8. Insulation

Insulation can be described as a system of separating different air spaces from each other for the purpose of controlling temperature or sound transfer (see #37 of Figure B-1). In building construction, the two basic types of insulation are low density air containing insulation, and reflective insulation to bounce off radiant energy.

The two basic types can be further classified as rigid and flexible insulation. Flexible insulation is commonly used in rehabilitation or repair not so much because of its insulating quality, but because it is an easier product with which to work and work around. In many cases where electric heat is being considered, the required insulation must also be part of the decision.

B.1.9. Stairs

The following terms are used in stair construction:

Tread: horizontal surface of step (see #57 of Figure B-1)

Riser: vertical surface at rear of tread (see #58 of Figure B-1)

Stringer: angled piece of wood or steel to which the treads or risers are shaped or fashioned (see #59 of Figure B-1)

Rise: vertical measurement between treads

Run: level distance between risers, although both rise and run dimensions usually refer to the overall opening

Winder: a step or tread of unequal dimension, used to change direction in a flight of stairs.

Some building codes provide that the product of the rise and tread shall not be less than 70 inches nor more than 77 inches and that there shall not be more than 15 risers between landings or platforms. Stairs with a width less than 44 inches shall have one handrail (see #61 of Figure B-1), and those more than 44 inches or curved stairs shall have handrails on both sides. The P.S.O. should have knowledge of the difficulty of replacing old stair parts. Many of the stair or railing members must be molded or shaped, and in some cases a recommendation must be made to replace newel posts (see #60 of Figure B-1) and balustrades (see #62 of Figure B-1), rather than to try and match the existing ones. See the Design section for further comment on this point.

The most common type of stairs in residential construction is the closed stringer, which incorporates a plastered soffit or underside of the stair carriage, contains "scotia" moulding under the front or leading edge of the tread, and is finished on both sides by a "skirt" board with appropriate moldings. The skirt moldings may or may not match the baseboard in the hall or room adjoining the stairs.

B.1.10. Windows

Window frames (see #51 of Figure B-1) and window sash (see #52 of Figure B-1) parts are as follows:

- Jambs: vertical side members.
- Head: horizontal top member.
- Sill: horizontal bottom member.
- Sash: framed unit, containing glass that can be moved within the window frame.
- Top and bottom rail of sash.
- Stiles: side parts of sash.
- Mullion: separators of glass within a sash.
- Parting bead: separator or guide for sash travel within the window frame.

Windows and sash are classified as: double hung, single hung, sliding (horizontal), casement (hinged to swing in or out, up or down), folding, horizontal or vertical pivotal, and the jalousie window.

The condition of the existing windows in a structure must be examined closely because one of the prime areas of "weathering" on an exterior wall is the window sash, frame, and trim. It could be that it would be less expensive to replace the entire window frame and sash rather than to try to repair it in place. Windows should be flashed and caulked at top, sides, and bottom to keep them watertight. The rehabilitation work or repair write-up could contain a section that relates to windows and could require the contractor to be responsible for repairing all of the various members of the sash, travel, and window frame components.

The rehabilitation work or repair write-up should require, as a minimum, that the contractor inspect the sash cords or balances and replace those that are worn or inoperative. All broken glass should be replaced.

B.1.11. Foundations and Cellars

A foundation (see #40 of Figure B-1) is that part of a building on or below the ground level which transmits the weight of the building to the bearing material beneath. The foundation supports the superstructure. Most houses have spread footings (see #42 of Figure B-1) consisting of a pad of stone, brick, block, or concrete wider than the foundation wall. This spreads the weight of the structure over a wider bearing area, just as snowshoes keep a man from sinking into the snow. Houses without foundation walls and cellars may stand on a slab or be supported on a grid of posts. Some few houses built on very poor bearing may be supported on pilings, long vertical members of wood, steel, or concrete.

Masonry foundation walls can deteriorate through bulging, fracturing, dampness, settlement, and loss of brick, stone, and mortar.

Investigation of bulging or fracturing usually results in the recommendation that the damaged section be cut out and rebuilt. Lateral or horizontal support inside the building is necessary to ensure stability of a foundation wall. In new house construction, the foundation is not backfilled until the first floor joists are anchored to the sills, giving lateral support to the top of the wall, since without this lateral support the earth pressure will tip the wall.

Uneven settlement can be the cause of masonry fractures and the remedy will depend on whether the settlement is recent or dated. Close examination of the condition, a check of local building department records, and a talk with the owner or tenants may help to determine when the settlement took place. It is dangerous to presume a solution without all the facts at hand. If the settlement is dated and there has been no action for several years, it might be necessary that the fault be cut out and rebuilt. However, recent activity in the masonry wall will require a great deal of investigation before a solution is recommended.

Deterioration of exterior masonry walls at ground level can be the result of chemical action between the soil and the elements contained in the masonry. Older houses were at one time heated by coal and the ash products were deposited along the side or rear masonry foundation walls. The chemical action produced between the wet ash and the brick and mortar had a tendency to eat away the brickwork. Some remedies have relied upon a stucco cement plaster to repair the worn part and usually, for appearance alone, this meant stuccoing the entire foundation wall above grade. If the brick is a veneer with a block or stone backup, the brickwork can be replaced.

Interior masonry deterioration usually consists of powdering of the joints. Conditions of this sort can be remedied by tuckpointing, which is the cutting out of part of the joint and pointing with new cement mortar.

Foundations below ground must be damp proofed or, if below ground water level, must be waterproofed. There are several ways to accomplish this:

- Orangeburg pipe.

- Clay drain pipe.

- Bituminous materials.

- Portland cement mortar.

- Gravel fill under floors and walls.

- Dry wells and sump pumps.

Orangeburg pipe is a bituminous fiber pipe of four or six inches in diameter with holes on two-thirds of its surface. When buried around the perimeter of a house, it picks up ground water and carries it off to a suitable disposal, such as a leaching field, a storm drain, or a dry well.

A permanent drain pump may be inserted in a pit in the cellar floor and drained into the sanitary waste systems, although most communities require a separation of storm and sanitary wastes.

Bituminous materials for waterproofing would include a coating of hot tar or asphalt cement. There is a variety of manufactured products available as water retardant agents, including a cement mortar containing a water repellent. Waterproofing agents should be used only on a dry surface. The use of products of this type may avoid digging up the outside of the house to install orangeburg pipe.

Water pressure on a foundation wall or cellar floor may be a temporary condition and therefore some investigation is necessary. Knowledge of how often the water condition occurs may give a clue regarding the source of the water. Check with the city water department; talk with the local building inspector; find out at what level the water table is located; locate the water entrance and sewer lines. The sewer department not only knows about the lines for that street, but also has records of where underground streams and springs are located. It may be necessary to use dye tracers to test sources of seepage.

If this information does not solve the problem, more drastic measures are required. When the area is dry, waterproof cement on the interior is recommended. It costs more than regular cement but when a rehab.inspection turns up water in the basement, it might make sense to specify waterproof cement. The work write-up might ask the contractor to cut a hole in the basement floor and install a pit to receive a sump pump, but if the pump were to run 24 hours a day just to keep the water down, it would be a pretty expensive way to keep the cellar dry. A water level test may be indicated; this is done by digging a hole 20 feet from the building down to approximately the level of the bottom of the cement floor inside the house to see if the water level is above the cellar floor level. If water enters that hole, the source is a spring or some water from a broken pipe, or the water level in the ground surrounding the structure is higher than the level of the cellar floor. If the soil conditions in the area contain strata of different materials such as topsoil, sand, soft and hard clay, hardpan and rock, it is possible that gravitational groundwater would flow along or between one or more of these strata. A drainage system of orangeburg pipe around the foundation to carry the water away is a possible solution, albeit an expensive one.

Usually water conditions in older houses are of a temporary or intermittent nature and are the product of an extremely heavy rainfall, when the surrounding earth becomes saturated. Before you spend any money on waterproofing a house, do a lot of checking. Money spent on waterproof cement is wasted if the foundation leaks again. Find the cause before spending any money.

B.1.12. Cellar Piers

Masonry piers, used to support wooden center girders (see #46 of Figure B-1) in older frame dwellings, have a tendency to lean out of plumb, fracture in the top third of their length, and deteriorate at the floor level. The old rule of thumb--repair in place or replace it--could be applied unless it makes more sense to install a concrete or steel column. Since such a column has a much smaller cross section than the pier it replaces, you must make sure that the pressure on the top and bottom is spread over the same area as that of the pier which is being replaced. Otherwise the column will tend to pierce the beam overhead and punch a hole through the cellar floor. The floor timbers on both sides of the center girder and the girder itself must be supported while the repair or replacement work is taking place.

Wood columns are not usually allowed in basement or cellar areas unless treated with preservatives.

Inspections may uncover spans between basement columns that are causing deflection in the timbers or girders. A recommendation for the installation of additional columns should include the consideration to "hold what you have" rather than try to restore the beam or timber to its original position, thereby causing movement throughout the structure. Signs of settlement are: tears in wallpaper, cracked plaster, bent or snapped service lines, foundation cracks, masonry veneer separating from the framing, etc. Is the building square, plumb, and level? Do the masonry and brickwork stand out in level courses? Do windows and doors jam or have they been trimmed out of square to fit? Any masonry wall or chimney that leans out of plumb by one-third of its own width should be rebuilt.

B.2. Basic Mechanical Elements

The three basic mechanical systems discussed in this section of Appendix B include the Plumbing System, the Heating System and the Electrical System. This discussion and the brief explanations cover the elementary components of these systems and are not intended to be complete and all-inclusive. It is hoped that the following may be of assistance to the P.S.O. in providing a basic understanding of how most of these systems work. Obviously, there are many deviations from the presentation here, and local conditions must be taken into full consideration.

B.2.1. THE PLUMBING SYSTEM

The P.S.O. does not need to know all the specifics of the plumbing system. However, a general familiarity with the terms and the overall elements helps him estimate how much work and expense are involved in bringing the property up to standards. In specifying the details of the work write-up and preparing a contract, he must be able to talk intelligently with the experts and give correct advice to the property owner.

Basically, a plumbing system consists of three separate parts: an adequate potable water supply system, a safe adequate drainage system, and ample fixtures and equipment.

B.2.1.1. Supply System

Water Service Line: The first element of the plumbing system we will consider is the supply system itself. The water may be from a public or a private water supply system; but from a plumbing standpoint whatever the source, the piping that carries the water into the structure is called the water service line.

If the water is obtained from a public supply, a main shut-off valve on the water service pipe is provided near the curb. This valve is usually the property of the water company and will be used exclusively by them in making changes within the water service line. An additional shut-off with a drip valve should be installed inside the structure, ahead of the water meter. This second valve can be closed to facilitate repairs on the plumbing system without undue loss of water. In instances where the water supply is from a private approved source, a shut-off of this type should still be provided. The water service pipe to the water distribution system for the building must be of sufficient size to furnish an adequate flow of water to meet the requirements of the building at peak demands. In no case should this pipe be less than 3/4 inch in nominal diameter. If there is a flushometer or other devices requiring a high rate of water flow, the water service pipe must be designed to supply this flow.

Materials for water distribution pipes, tubing and fittings are required to be made of brass, copper, cast iron, wrought iron, open hearth iron, steel or other materials accepted by the appropriate local authority.

Hot and Cold Water Main Lines: These pipes are commonly referred to as "main" lines because each serves two or more fixtures. Hot water lines should always run into the left side of the fixture and the cold into the right--when the fixture is viewed while facing the faucet.

Hot and cold lines although usually run parallel must always be at least six inches apart unless the hot water pipes are insulated. This separation prevents the cold water pipes from absorbing heat from the hot water pipes.

Branch Lines: Branch lines are run from hot and cold main lines and carry hot and cold water to one fixture only. Care must be taken to locate branch lines so as not to interfere with the normal operation of any windows, doors or exit openings.

Shut-off Valves: As discussed earlier, shut-off valves are installed within the system at points within either main or branch

lines to prevent flow of water when closed. Each fixture within the system should have a shut-off valve between the fixture and the remainder of the system. It is most important that all shut-offs as well as all fixtures shall be secured against leakage or dripping to prevent needless waste.

B.2.1.2. Drainage System

There are three major parts to house drainage systems (see Figure B-4):

- (a) The soil stack, a vertical line of 3" or 4", receives the discharge from all plumbing fixtures. (All drains from fixtures receiving body wastes must be of that size.) It connects into the building drain in the basement, where the waste is carried out to the public sewer main.
- (b) The waste (1-1/2" or 2" in diameter) conducts nonbody wastes to the soil stack.
- (c) The vent pipe provides for the discharge of all the sewage gases as well as being a means of providing even air pressure throughout the system so that there are no siphonages of trapseals or back pressure of sewage gas. Check the local codes to find out how high this vent must be above the roof line and how far away from abutting property. These vents are a great unknown factor in air pollution. No one seems to consider the millions of plumbing stacks in the country that are discharging vapors into the atmosphere.

B.2.1.3. Fixture Units

A fixture unit is the amount of water which will discharge by gravity through a one and one-quarter inch diameter pipe in one minute. The drain for a lavatory (the professional term for wash bowl or wash basin) is the standard size of one and one-quarter inches. In one minute one cubic foot (about seven and one-half gallons) of water is

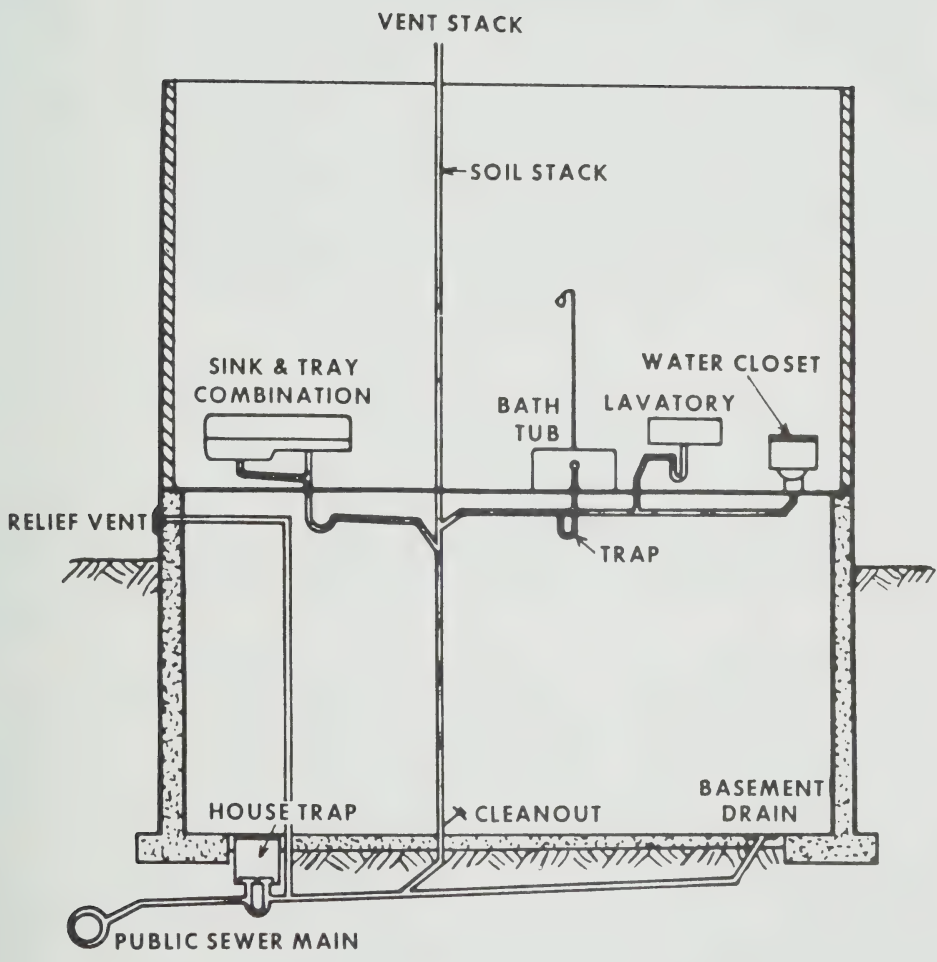


Figure B-4
Drainage Piping Diagram

discharged through the opening of that drain. This "fixture unit" has now become the standard unit of measure for computing minimum drain size in the plumbing trade. All the other fixtures are graded above or below. A kitchen sink is rated two; a bathtub with or without a shower is rated two fixture units. A water closet is rated from six to eight fixture units; if it is operated with a Flushometer it flushes about eight cubic feet or close to sixty gallons in one minute and is rated eight; if it is the tank type it is rated six. The three bathroom fixtures together are given a rating of six, even though separately they add up to ten or twelve fixture units.

B.2.1.4. Rating Fixture Units

This adjustment in rating fixture units is based on the assumption that it is unlikely that all fixtures in a building will ever be in use at one time. If they were, the drainage pipes (and supply pipes as well) would have to be enormous in order to take the full load of waste.

In rehabilitation or repair work you might find that there is a waste pipe one and one-half inches in diameter that is in working condition. This can drain two kitchen sinks, but if you wanted to tie in one more you would be in trouble and would have to change the pipe to a two-inch size. A three-inch line can handle 33 fixture units and a four-inch line 216 fixture units. It is advisable, and some codes stipulate, that no more than three water closets should empty into one three-inch soil stack. Moreover, since the flow in a horizontal pipe is more sluggish, only two water closets out of three on one stack should be on the same floor. The cost of the three-inch pipe and labor to install it is much less than that of a four-inch pipe. Considerable money perhaps can be saved if you know that a smaller size is adequate and that you can take this into your figuring in the preliminary discussion of plans. Of course, experts in the field would have to make the final determination.

B.2.1.5. Common Problems

A common drainage problem nowadays is the backing up of washing machine discharge into the kitchen sink. The plumbing may be free-running, but a backup may still occur. Detergents are a big factor, particularly the foaming type. In older buildings--for instance, a three family house--often the first floor sink discharges directly into the waste stack, and the second and top floors discharge into the same stack, with no other vent than an extension, resulting in a backup in the sinks. Slowing down the discharge rate of the washing machine might help, or the drainage can be carried out separately in another line.

B.2.2. HEATING SYSTEMS

The objective of a heating system is to transfer sufficient heat when needed from the warm object, the heat source, to the colder object, usually the occupant. Heat is the transfer of energy, and the flow is always from the warmer to the colder object.

There are three ways by which heat is transferred: conduction, radiation, and convection. Conduction is the direct passage of heat from a hot object to a cold one. If you sit on a radiator and get warm, you are being heated by conduction. In radiation, the heat travels in straight lines out from the radiator or baseboard. If you feel warmth in the air near a radiator, you are being warmed by radiation. In convection the air is heated directly without the use of a "middleman"--like water or steam. The air is warmed in the burner and circulated through the air ducts into the various rooms. As it loses its heat and cools, it enters the return ducts and goes back to the furnace for warming again.

All of these transfer methods have disadvantages as well as advantages. For example, any object near a radiator is heated by radiation, whether it be a person inside the room or a cold exterior

wall. Heat is also lost through the glass windows or through sashes that are not tight. Heating engineers can calculate the heating requirements for a room by computing this heat loss. Their unit of measure is a "foot of radiation". This is simply the total area of the heating element capable of emitting heat at a known rate.

You may need to know how to compute this if you have to decide on the size of new radiators for an apartment. There is an old-fashioned way of computing heat loss by the "20 - 2 - 200" method. (This does not consider any insulation.)

Step 1. Measure the area of outside-weather walls. Allow one radiation foot for each 20 square feet of outside wall.

Step 2. Measure the area of all the glass in the windows of the room. Allow one radiation foot for each 2 square feet of glass.

Step 3. Measure the volume of the room (length, width, and height). Allow one radiation foot for each 200 cubic feet of room volume.

Step 4. Add all the radiation footage required. This is the required capacity of the radiators to be used.

NOTE: When in doubt about radiator size, increase the size slightly--never decrease.

To compute the size of the required boiler merely add the requirements for all the rooms. This figure should be minimum output rating of the boiler specified. If a tankless water heater is installed, allow an additional 100 radiation feet on the boiler size.

B.2.2.1. Steam Heat

Steam is not a very practical way or a very modern way of heating, but in rehabilitation you will often be dealing with it. If the existing system is functioning satisfactorily, it is better to leave it alone, as it is very economical to run. The only limitation is the capacity of the input of the boiler in relation to the job it is required to do.

Figure B-5 pictures the functioning of a typical gravity one-pipe steam heating system. The water in the boiler is subjected to latent heat so that the water turns to steam. The steam rises up through the radiators, cools, condenses back to water (referred to as condensate), and returns through the supply pipe to the boiler to be reheated.

A common problem that occurs in steam heating is the pounding noise. To correct this you sometimes have to level the radiator. Suppose the radiator has a slight pitch away from the steam supply end and that the temperature of the water in the radiator has dropped to 180 or 160 degrees. There is a quick escape of energy as the steam in the radiator tries to get to the top, and the result is a knocking and pounding. Sometimes a wooden block can be slipped under the radiator legs to level it. For a really chronic hard-heating radiator there are now on the market cast iron legs which are decorative and adjustable, and which can be painted to look like part of the radiator.

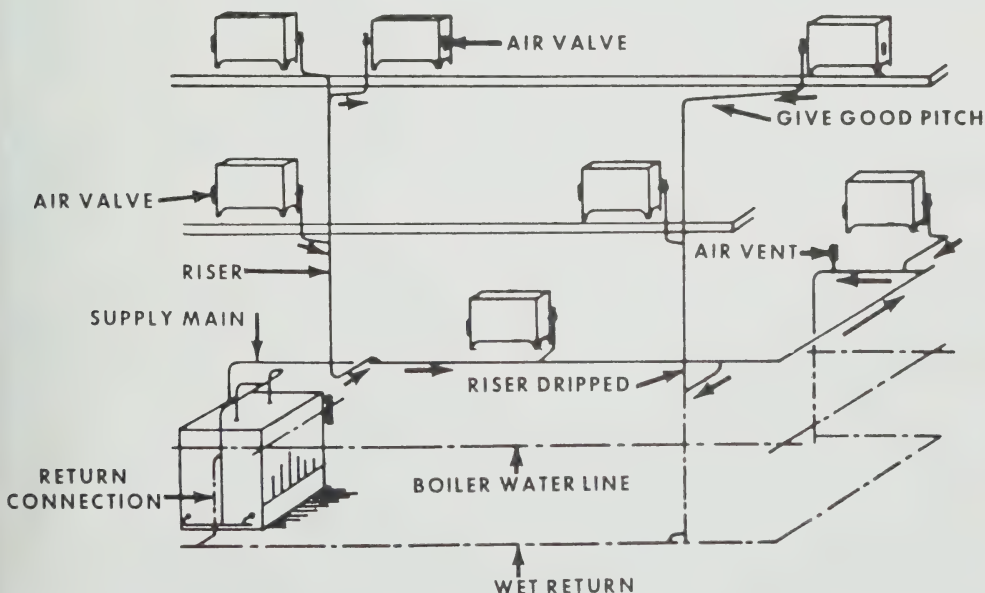


Figure B-5

Typical Gravity One-Pipe Steam Heating System

B.2.2.2. Summary--Steam Heat

The successful operation of steam heating systems consists of generating steam in sufficient quantity to equalize building heat loss at maximum efficiency, expelling entrapped air, and returning all condensate to the boiler rapidly. Steam cannot enter a space filled with air or water at a pressure equal to the steam pressure. Therefore, it is important to eliminate air and to remove water from the distribution system.

B.2.2.3. Hot Water Heat

Figure B-6 shows the flow of water through a forced hot water two-pipe system. There is a tankless hot water heater attached to provide the domestic hot water. The major units, labeled in the illustration, are the boiler, the boiler feed through which the water enters the boiler, the expansion tank (which balances out pressure changes in the system due to the rising and changing levels of temperature of the water), and the tankless hot water heater.

We will describe the functioning of the heating unit itself and then comment on the modifications resulting from the attached hot water heater. The numbers in parenthesis refer to the components noted in Figure B-6.

At the left of the boiler you will see that the water enters through a feeder line. There are three controls on this unit plus the discharge line. First, looking in the direction of the flow of water, is the inlet valve (1) which is manually operated and kept open. Its function needs no explanation. Next is the pressure reducing valve (9). The pressure of the water as it comes into the heating unit from the city is usually in excess of 15 psi for domestic use. The pressure reducing valve works automatically so that the pressure in the boiler will not build up beyond its capacity. Next on the feed unit, closest to the boiler, is the pressure relief valve (3). In case the reducing valve malfunctions, this is the safety control that will work to direct

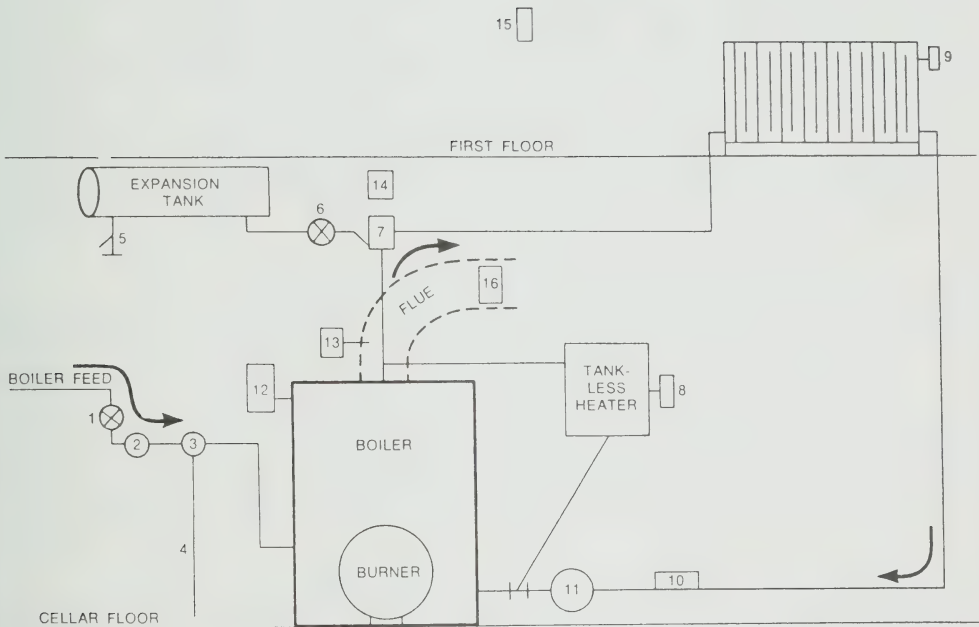


Figure B-6

Forced Hot Water Heating System -- Oil Fired

Legend:

- | | |
|----------------------------|--------------------------|
| 1. inlet valve | 9. radiator air vent |
| 2. pressure reducing valve | 10. reverse aquastat |
| 3. pressure relief valve | 11. recirculating pump |
| 4. discharge line | 12. high limit control |
| 5. (expansion tank | 13. stack switch |
| draw-off valve | 14. Fire-o-matic |
| 6. shut-off valve | 15. thermostat |
| 7. flow control valve | 16. barometric butterfly |
| 8. summer-winter control | |

the flow of water into the discharge line (4) and out onto the cellar floor. Sometimes you will notice a slight dripping of water from the discharge line, indicating that pressure is at about maximum. This condition may be relieved by draining the expansion tank. As the water in the boiler is heated by the fuel (oil in this instance) it expands. If it has no place to go, the boiler could crack or explode. To take care of this situation there is an expansion tank above the level of the boiler. Normally this tank operates at maximum efficiency when it is filled with about $\frac{2}{3}$ water and $\frac{1}{3}$ air. This is because air is compressible and as the water expands or contracts, the air cushion provides a further safeguard against excessive pressure developing within the system.

Ideally, the proportion of water and air in the expansion tank should be nearly constant. However, as the water flows back and forth from the boiler, air escapes with it and is lost as it circulates through the radiators on the floors above. Thus, over the heating season, the expansion tank becomes nearly full of water (water-logged) and has to be drained. There is a draw-off valve (5) to take care of this.

Some tanks provide the means for letting air in at the top as the water drains; otherwise draining takes all day or longer. There is a manually operated shut-off valve (6) between the expansion tank and the boiler for emergency use. Thus, the pressure in the system is balanced off by the expansion tank and is also regulated at the point of flow into the tank. Looking again at the illustration, you will note a valve labeled flow control valve (7). This is used mainly in the warm months of the year when only water for domestic use has to be heated. When the summer-winter control (8) is activated, and the boiler is controlling the supply of hot water to heat only the domestic water supply, this flow control valve prevents the water from escaping through the system. It closes off the flow so that the water circulates only from the boiler to the tankless heater and back again.

Now let your eyes follow along to the radiator where air vents (9) are installed to regulate again the amount of water going through the pipes. Then your eye comes down the return pipes to the reverse aquastat (10). The function of this aquastat is to trigger off the system so that the boiler will be fired and the heating process will repeat itself. Finally, on the line and next to the boiler is the recirculating pump (11). If this were a gravity system there would be no pump to force the hot water through the system. Instead, there would be a more definite pitch to the return to allow for the flow of gravity.

In addition to these controls there are other safety controls that cut electrical power to the burner in case of excessive heat build-up. At the top of the boiler there is a high limit control (12). When the water temperature reaches the limit set, this control, which is usually set to function at about 200 degrees F., will shut off the system. There is also a stack switch (13) that shuts off the system in case there is no ignition within 90 seconds after the thermostat has triggered the flow of fuel to start the burner. This is mounted on the flue pipe with a heat-sensitive spring inside the flue. The Fire-o-matic (14) is a mechanical device set above the boiler which, if a fire should occur, will drop out and cut off all current. Should this device malfunction, it is recommended that it be replaced completely. Symptoms of a malfunction are: (a) intermittent, brief firing periods in the burner; (b) no ignition; (c) prolonged ignition. These are further dealt with in the Electrical System (section 3) which follows. All of the conditions mentioned above can be checked by putting the thermostat (15) to a high setting.

In the flue is a barometric butterfly valve (16) which operates mechanically, being moved by the flow of stack gases and the external air pressure. It controls the flow of fresh air into the flue to dilute the stack gases, maintain a constant temperature, and prevent downdraft.

B.2.2.4. Forced Hot Air

To visualize how the warm air heating system works, picture a box with two chambers, like a can within a can.

Fuel burns in the central container, and its combustion gases are drawn off through the flue. Air in the outer chamber is heated by radiation and conduction from the inner (combustion) chamber, expands, and then circulates through the hot air ducts into the rooms. As the air cools, the convection currents enter the cold air return ducts and flow back to the outer box, thus completing the circuit. Some systems are more sophisticated, with pumps and fans for speeding up the velocity. Simpler installations usually work on gravity, relying on the fact that air, when heated, expands, becomes lighter, rises toward the roof, and comes back through the return registers.

In modern systems the cold air returns are taken, if possible, from each room containing a warm air register. If that is not possible, the cold air should return from the coolest part of the residence, usually a vestibule or inside entry way.

B.2.3. ELECTRICAL SYSTEM

B.2.3.1. Introduction

Terms like voltage, amperage, and wattage are used every day, yet very often people confuse the distinctions in meaning, and this leads to errors in work write-ups or job specifications. This inaccuracy can be embarrassing to a P.S.O.

Very simply, voltage ("E") is the potential of pressure or force; amperage ("I") is the amount or quantity; wattage ("W") is the rate of consumption of electricity by the consumer. The term wattage is never used except to refer to the amount used, and it is computed by multiplying the voltage (potential) by the amperage (quantity).

There are two basic concerns to keep in mind when you are considering the electrical systems of a building: one is the safety of present conditions, and it is mentioned first as the more important of the two; second is the adequacy of the system in relation to the size and usages of the building. The two, however, are not separate from each other, though safety is surely the more basic consideration.

Two codes help make determinations about the existing conditions and about whether or not they require any corrections. The local housing code deals with minimum standards for lighting, sets the number of outlets and fixtures per room, and lays down restrictions on temporary wiring and the like, while the electrical code governs the specifics of installation and operation of the system. The electrical code covers the minimum provisions to guarantee safety of persons and buildings.

The section which follows provides a general list of safety considerations that have to be kept in mind when preparing, with a property owner, a plan for repairs to or the rehabilitation of his property. A word of caution might be wise here: be careful to avoid statements that can cause your listener to panic. Always use tact when pointing out violations of codes or unsafe conditions. Though you must call for the correction of hazards, try always to do it in a way that will result in action but not in undue fright!

B.2.3.2. Inspection for Safety

It is a good idea to observe the overhead service outside the building before entering (see Figure B-7). Perhaps you will already know the type of service provided by the utility company at the pole. By checking the wiring from the pole to the building, you will see whether it is two-wire, three-wire, or four-wire. This kind of check outside the building also indicates the location of the service inside. While making these observations, it is possible to note problems such as corrosion that may be present and to determine whether the conductors are firmly in place. Another important thing to observe is the

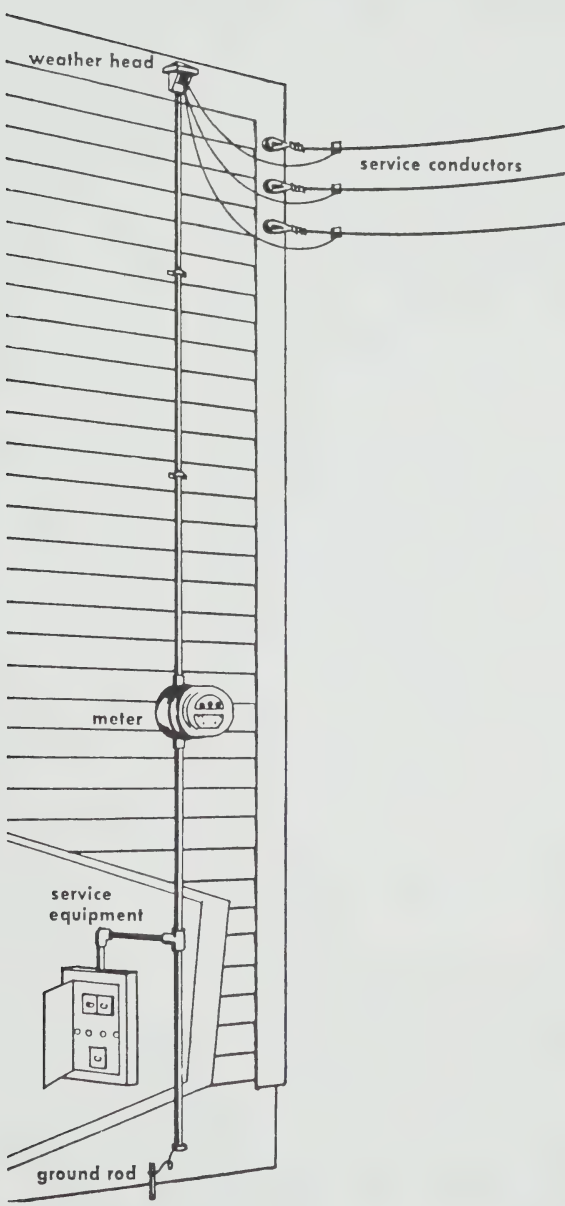


Figure B-7

Outside Electrical Service from Pole to House

accessibility of the wiring from the pole. Sometimes when an addition such as a porch is put on the house, the wiring becomes obstructed, and this is always an unsafe condition.

Inside the building, go to the main fuse boxes. First, check the ground connection; note if it is bonded securely either to the water main on the street side of the meter, or to a special grounding rod. Note the condition of the wiring, but do not try to disassemble the fuse box or any other device. Fuses or circuit breakers open or interrupt a circuit as a means of protection. The use of two-part or non-transferable fuses prevents bridging by the use of a coin or the insertion of a fuse larger than the design the system requires.

While you are in the cellar note whether or not it has a damp floor. A damp floor makes it very dangerous for anyone to touch any part of an electrical system. If the dampness appears to be a continuing condition, it is possible that there may be corrosion of the wiring system, so pay special attention to that factor and look for fraying or bare spots in the wire. Also check for improperly spliced wire and rotted or cracked insulation. Take a look at the condition of any portable lighting and flexible cords around work benches.

As you walk through the public hallways, up the stairs, or enter a foyer, observe the adequacy of the lighting. You should be able to see your way clearly so that you are not in danger of tripping or falling, and there should be a switch on each landing.

Bathroom, kitchen, and laundry fixtures and receptacles should be installed far enough away from all washing or bathing facilities so that they will not be splashed with water and so that the occupants will not be exposed to the danger of shock. If there is a metal pull chain in the bathroom, it is essential to tie a string to the end of the metal until the pull chain has been replaced by proper wall switches.

B.2.3.3. Adequacy of Service

An adequate wiring system delivers a satisfactory voltage to each outlet and includes enough circuits, outlets, receptacles, and overcurrent devices to meet at least the minimum code standards of safety and basic standards of comfort and convenience.

The upper section of Figure B-8 pictures the two main kinds of systems provided at the pole or underground for the consumer. In two-wire service, two wires are run from the pole to the meter, one neutral and one hot. This provides a maximum of 120 volts and is often an indication of an older installation which may provide less power than many households demand today.

The lower diagram pictures an even more modern and flexible three-phase four-wire system at the pole. The customer might still run off two or three-wire services to his building. This source is found more and more frequently, particularly in areas where there is considerable mixed usage of properties. It is important to be familiar with this new type of potential provided at the pole. In this instance, a customer who has a three-wire system from the street to his residence has a maximum of only 208 volts instead of the 240 maximum provided by the single-phase three-wire system. This means that the P.S.O. in planning the electrical work for a work write-up, must keep in mind that the appliances must be limited to 208 volts where the three-phase four-wire system is provided at the pole.

B.2.3.4. Size of Service

In describing the voltage, we have been concerned with the potential pressure or force of electrical service provided at the pole by the utility company. We now shift to a description of the amount of electrical service, that is, the amperage available to the consumer through the service entry conductors. This is related to the wire size. Normally, for 60 ampere service, the standard size of copper wire is #6. Many existing services are 60 ampere and are adequate

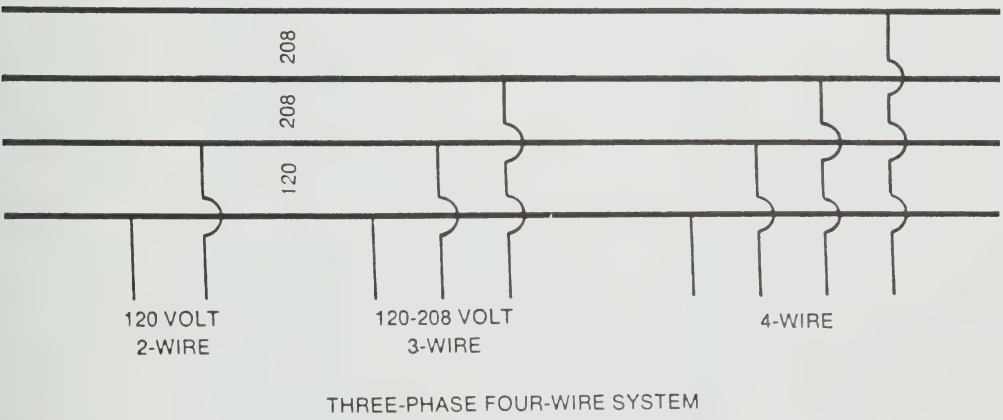
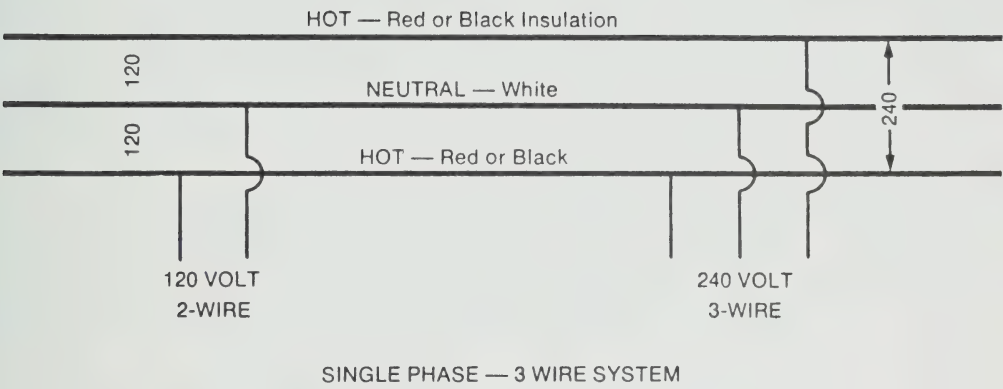


Figure B-8

Types of Electrical Service

for lighting and normal usage appliances. A more adequate service is 100 amperes, which allows for many more of the modern appliances found in today's homes. Normally, copper wire size #3 is used here. The P.S.O. would not need to know about the wire size. However, it is mentioned here to show that the size of the amperage service is related to the size of service entry conductors. There is absolutely no relationship to the voltage potential about which we were talking in the opening paragraphs.

Appliances are also sized by wattage as well as by voltage. In 120-volt potential, 100 watts equals about one ampere. Wattage is the unit by which actual consumption is measured. The following table gives the normal wattage of appliances commonly used today:

<u>Appliance</u>	<u>Watts</u>
Air Conditioner (central)	5000
Air Conditioner (window)	see nameplate
Blanket	150
Blender	250
Chafing Dish	600
Clock	3
Coffee Maker	600
Deep Fryer	1320
Dishwasher	1800
Egg Boiler	250
Electric Shaver	10
Fan	75
Food Mixer	200
Furnace (fuel fixed)	800
Frying Pan	600
Garbage Disposer	900
Griddle	1300
Grill	600
Heater (radiant)	1600
Heating Pad	50
Hot Plate (2 burners)	1650
Humidifier	500
Immersion Heater	300
Iron	1000
Ironer	1650
Lighting	
Bed Lamp	40
Ceiling Light	100
Decorative Lights	80
Dining Light	150
Dresser Lamps	60

<u>Appliance</u>	<u>Watts</u>
Drop Light	60
Floor Lamp	400
Flourescent	80
Sun Lamp	275
Table Lamp	100
Radio	100
Range	8000-16000
Refrigerator	250
Roaster (Large)	1380
Rotisserie	1400
Sewing Machine	75
Soldering Iron	200
Stereo HiFi	300
Sump Pump	300
Television	300
Toaster	1100
Vacuum Cleaner	400
Waffle Iron	660
Washing Machine-Dryer	5200
Water Heater	2500-4500
Water Pump	300

B.2.3.5. Wiring Panels

Fuseless (Circuit Breaker) Panel (see Figure B-9): This is a service panel that provides for carrying a full-rated load and automatically stops the flow of current by causing a switch to open when the circuit is shorted or overloaded. It takes harmless short period overloads (such as the heavy initial current required in the starting of a washing machine or air conditioner) without tripping, but protects against prolonged overloads. After the cause of trouble has been located and corrected, the power is easily restored by flipping the circuit breaker switch. (Circuit breakers are modern substitutes for fuses.) Fuseless service panels are usually set up into the following circuits:

- (a) 100 amp. or larger main circuit breaker which shuts off all power.
- (b) 40 amp. circuit for an appliance such as an electric cooking range.
- (c) 30 amp. circuit for clothes dryer, hot water heater, or central air conditioning.

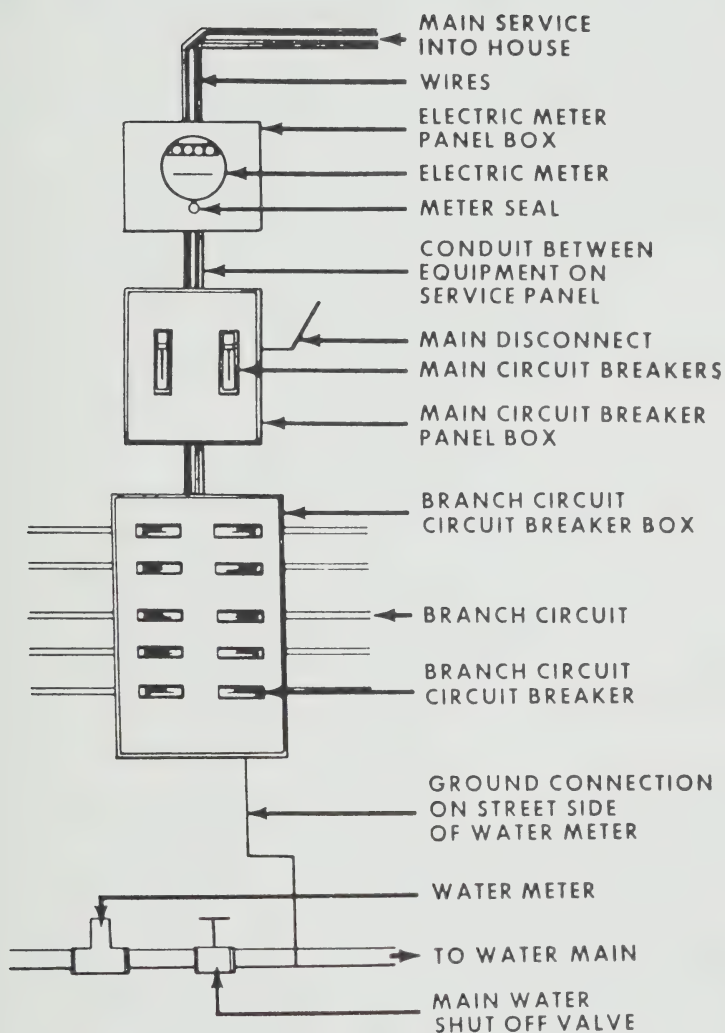


Figure B-9

Three-Wire Grounded Single Phase
Circuit Breaker Service Panel

- (d) 20 amp. circuits for kitchen and small appliances and power tools.
- (e) 15 amp. circuits for general purpose lighting, TV, and vacuum cleaner.
- (f) Space for circuits to be added if needed for future use.

B.2.3.6. Fused Ampere Service Panel or Fuse Box

Fuse type panel boxes (see Figure B-10) are generally found in older homes. They are equally as safe and adequate as a circuit breaker of equivalent capacity, providing fuses of the proper size are used.

A fuse, like a circuit breaker, is designed to protect a circuit against the dangers of overloading and short circuits and does this in two ways:

- (a) If a fuse is blown by a short circuit the metal strip is instantly heated to an extremely high temperature causing it to vaporize. A fuse blown by a short circuit may be easily recognized because the window of the fuse usually becomes discolored.
- (b) A fuse blown by overload melts the metal strip at its weakest point breaking flow of current to the lead. In this case the window of the fuse remains clear; therefore, a blown fuse caused by an overload may also be easily recognized.

Sometimes, although a fuse will not be blown, the bottom of the fuse may be severely discolored and pitted. This indicates a loose connection due to the fuse not being screwed in properly.

Generally, all fused panel boxes are wired similarly for two and three-wire systems. In a two-wire circuit panel box, the black or red hot wire is connected to a terminal of the main disconnect, and the white or light gray neutral wire is connected to the neutral strip which is then grounded to the pipe on the street side of the water meter. (A panel may be grounded to any metal water pipe which is in direct, metal to metal, contact with the water meter provided that a ground wire is included across the meter from the house to the street side.) In a three-wire system, the black and red hot wires are

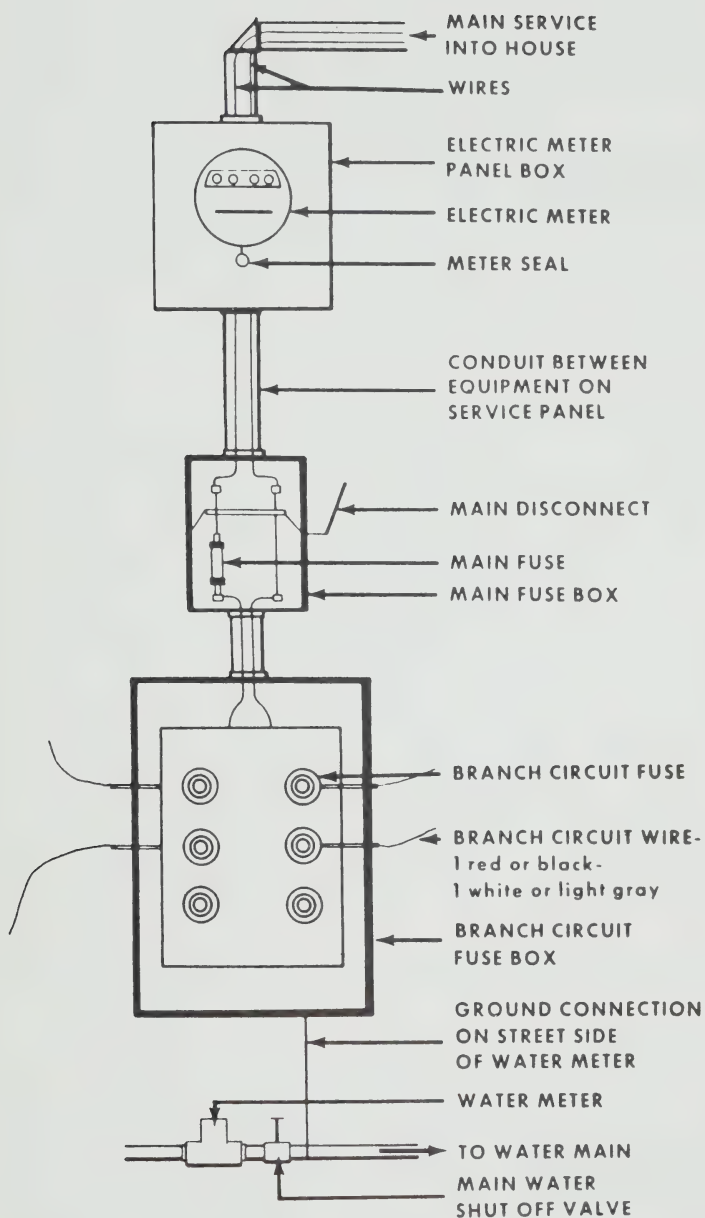


Figure B-10

Two-Wire Single Phase Grounded
Service Panel (Fuse Type)

connected to separate terminals of the main disconnect, and the neutral wire is grounded the same as for a two-wire system.

Below each fuse is a terminal to which a black or red wire is connected. White or light gray wires are then connected to the neutral strip. Each fuse indicates a separate circuit.

B.2.3.7. Circuits

An electrical circuit in good repair carries electricity through two or three wires from the source of supply to one or more outlets and back to the source. Circuits may include the following items:

- (a) A General Purpose Circuit -- provides electricity for the lighting fixtures and incidental electrical uses in a building.
- (b) Appliance Circuit -- supplies energy to one or more outlets to which appliances are to be connected, but have no permanently connected lighting fixtures. In new buildings receptacles will have provisions for a group type (three-prong) plug.
- (c) Branch Circuit -- that part of the wiring system reaching beyond the final overcurrent device protecting it from overloading to the outlet or receptacle where the lighting fixtures or drop cords are attached.
- (d) Branch Circuit Junction Box -- a box where the branch is connected to the main circuit.
- (e) Fixture -- a unit for holding lights. It is wired inside and is, or should be, securely attached to ceilings or walls.
- (f) Convenience Outlet -- a device placed in an outlet box and connected to its wires, so electricity can be drawn off simply by plugging in electric cords.
- (g) Grounding -- the connection of the electrical system or circuit to the earth or to some conducting body, which is connected to the ground, such as a water pipe, which serves as a means of minimizing the danger of lightning and shocks.

B.2.3.8. Types of Wiring (see Figure B-11)

Conductors should have insulation and current-carrying capacity adequate for the particular conditions under which they are to be used. Cable splices and cable taps should be made only in junction boxes. Open wiring is a wiring method using knobs, nonmetallic tubes, cleats and flexible tubing for the protection and support of insulated conductors in or on buildings and not concealed by the structure. The term "open wiring" does not mean exposed bare wiring. In dry locations when not exposed to severe physical damage, conductors may be separately encased in flexible tubing. Tubing should be in continuous lengths not exceeding 15 feet and secured to the surface by straps not more than 4-1/2 feet apart. They should be separated from other conductors by at least 2 inches and should have a permanently maintained air space between them and any and all pipes which they cross.

Knob and tube wiring is a wiring method using knobs, tubes, and flexible nonmetallic tubing for the protection and support of insulated wires concealed in hollow spaces of walls and ceilings of buildings. This wiring method is similar to open wiring and, like open wiring, is found only in older buildings.

Where local code permits, plastic sheathed cable having heavy, inner, thermoplastic insulation with solid copper conductors may be used. Single purpose type is for indoor use only; dual purpose may be used indoors, outdoors, or underground.

Flexible armored cable is for use in dry indoor locations. Wires are concealed in heavy steel covers and must be used with steel switch boxes and junction boxes. Flexible armored cable may also be used for exposed runs or concealed runs provided the location is dry. Armored cable must be supported by a strap or staple every 4-1/2 feet and within 12 inches of each switch box, except for concealed runs in old work where it is impossible to mount straps.

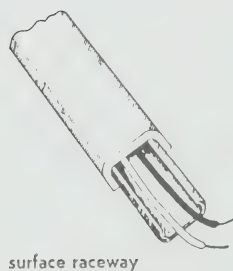
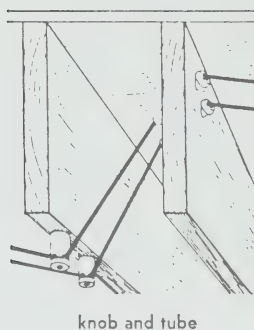
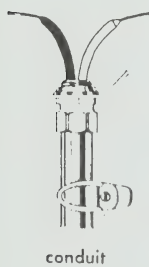
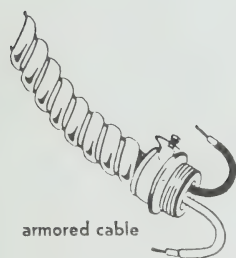
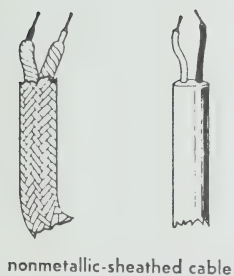


Figure B-11

Common Types of Wiring Materials

APPENDIX C
SAMPLE OF CHECK LIST
AN INSPECTION

APPENDIX C

SAMPLE OF AN INSPECTION CHECK LIST

NOTE: The inspection check list contained in this Appendix is to serve as a sample for general guidance. The P.S.O. should develop his own method of initial inspections and his own check list. This sample may give him an idea and some hints as to how to approach this matter and may, therefore, be of assistance to him.

OWNER:

ADDRESS:

DATE:

HOUSE TYPE:

CONSTRUCTION:

SIZE:

ROOF TYPE: HIP OR COTTAGE _____ GABLE _____ FLAT _____ OTHER _____

FOUNDATION:

CONDITION:

BASEMENT FLOOR:

CONCRETE ☐
 BLOCK ☐
 PIERS ☐
 OTHER ☐

GOOD ☐
 FAIR ☐
 POOR ☐

GOOD ☐
 FAIR ☐
 POOR ☐

CELLAR _____ BASEMENT _____ CRAWLSPACE _____ COND. OF FLOOR _____

(See comments back sheet) _____

FLOOR FRAMING:

1st Floor 2nd Floor 3rd Floor Cond. of Floor Sheathing

GOOD ☐
 FAIR ☐
 POOR ☐

☐
☐
☐

☐
☐
☐

☐
☐
☐

(See comments back sheet)

HEATING:

FUEL:

CONDITION:

FORCED AIR ☐
 HOT WATER ☐
 STEAM ☐
 GRAVITY ☐
 SPACE HEATER ☐
 ELECTRIC ☐

GAS ☐
 OIL ☐
 WOOD ☐
 COAL ☐
 PROPANE ☐
 ELECTRIC ☐

GOOD ☐
 FAIR ☐
 POOR ☐

ELECTRICAL:

SIZE OF SERVICE: AMPS. _____ FUSES _____

NUMBER OF CIRCUITS: _____ METER: INSIDE _____ OUTSIDE _____

DOES THE OWNER REQUIRE OR REQUEST UPDATING TO 100 AMPERES? YES ___ NO ___

BASEMENT: NO. OF LIGHTS:

SEPARATE CIRCUITS: Y. N.

EXISTING: _____
 REQUIRED: _____

HEATING ☐ ☐
 LAUNDRY ☐ ☐
 FREEZER ☐ ☐
 OTHER MOTORS ☐ ☐

CONDITION OF WIRING: GOOD ___ FAIR ___ POOR ___

KITCHEN:

	E.	R.
SPLIT RECEPTACLE	<input type="checkbox"/>	<input type="checkbox"/>
FRIDGE PLUG	<input type="checkbox"/>	<input type="checkbox"/>
LIGHT	<input type="checkbox"/>	<input type="checkbox"/>

	E.	R.
SWITCH	<input type="checkbox"/>	<input type="checkbox"/>
RECEPTACLES	<input type="checkbox"/>	<input type="checkbox"/>
AIR COND. UNIT	<input type="checkbox"/>	<input type="checkbox"/>

EXTENSION CORDS IN USE: YES _____ NO _____

DINING ROOM:

	E.	R.
PLUGS	<input type="checkbox"/>	<input type="checkbox"/>
LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>
SWITCHES	<input type="checkbox"/>	<input type="checkbox"/>
PULL CHAINS	<input type="checkbox"/>	<input type="checkbox"/>

EXTENSION CORDS IN USE: YES _____ NO _____

LIVINGROOM:

	E.	R.
PLUGS	<input type="checkbox"/>	<input type="checkbox"/>
LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>
SWITCHES	<input type="checkbox"/>	<input type="checkbox"/>

EXTENSION CORDS IN USE: YES _____ NO _____

HALLWAY:

	E.	R.
PLUGS	<input type="checkbox"/>	<input type="checkbox"/>
LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>
SWITCHES	<input type="checkbox"/>	<input type="checkbox"/>
3-WAY	<input type="checkbox"/>	<input type="checkbox"/>

BEDROOMS:

1. LOCATION: _____
 LENGTH: _____
 WIDTH: _____

	E.	R.
PLUGS	<input type="checkbox"/>	<input type="checkbox"/>
LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>
SWITCHES	<input type="checkbox"/>	<input type="checkbox"/>
PULL CHAINS	<input type="checkbox"/>	<input type="checkbox"/>

2. LOCATION: _____
 LENGTH: _____
 WIDTH: _____

PLUGS	<input type="checkbox"/>	<input type="checkbox"/>
LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>
SWITCHES	<input type="checkbox"/>	<input type="checkbox"/>
PULL CHAINS	<input type="checkbox"/>	<input type="checkbox"/>

3. LOCATION: _____
 LENGTH: _____
 WIDTH: _____

PLUGS	<input type="checkbox"/>	<input type="checkbox"/>
LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>
SWITCHES	<input type="checkbox"/>	<input type="checkbox"/>
PULL CHAINS	<input type="checkbox"/>	<input type="checkbox"/>

4. LOCATION: _____
 LENGTH: _____
 WIDTH: _____

PLUGS	<input type="checkbox"/>	<input type="checkbox"/>
LIGHTS	<input type="checkbox"/>	<input type="checkbox"/>
SWITCHES	<input type="checkbox"/>	<input type="checkbox"/>
PULL CHAINS	<input type="checkbox"/>	<input type="checkbox"/>

STAIRWAY:

1) LOCATION: _____

2) LOCATION: _____

CONDITION
OF STAIRS:GOOD _____ FAIR _____
POOR _____GOOD _____ FAIR _____
POOR _____

SUFFICIENT LIGHT: YES _____ NO _____

YES _____ NO _____

HANDRAIL: YES _____ NO _____

YES _____ NO _____

3-WAY SWITCH: YES _____ NO _____

YES _____ NO _____

EXTERIOR LIGHTING OVER DOORWAYS AND STEPS: EXISTING: _____

REQUIRED: _____

PLUMBING:

CONDITION:

G. F. P.

WASTES: COPPER _____ GALVANIZED _____ LEAD _____ PLASTIC _____
WATER LINES: COPPER _____ GALVANIZED _____

WATER CLOSET: WALL HUNG _____ CLOSE COUPLED _____
WHITE _____ COLOURED _____

--	--	--

BASIN: WALL HUNG _____ VANITY _____ PEDESTAL _____
CAST IRON _____ CHINA _____
WHITE _____ COLOURED _____

BATH TUB: ROLL RIM _____ RECESSED _____ WHITE _____ COLOURED _____

--	--	--

KITCHEN SINK: WALL HUNG _____ COUNTER _____ ENAMEL _____ STAINLESS _____
SINGLE COMPT. _____ DOUBLE COMPT. _____

LAUNDRY TUBS: CEMENT _____ CAST IRON _____ ENAMEL ON STEEL _____
PLASTIC _____ FIBERGLAS _____
SINGLE COMPT. _____ DOUBLE COMPT. _____

CONDITION OF BRASS GOODS:

G. F. P.

BASIN:

TAPS
TRAP
P.O.

BATH TUB:

TAPS
TRAP
W.&O.

KITCHEN SINK:

TAPS
TRAP
STRAINER OUTLET

LAUNDRY TUBS:

TAPS
TRAP

DOES OWNER WISH:

- | | | | |
|------|-----------------------------|--------------------------|--------------------------|
| i) | TO RENEW PLUMBING FIXTURES? | YES | NO |
| ii) | TO RENEW BRASS GOODS? | <input type="checkbox"/> | <input type="checkbox"/> |
| iii) | TO RENEW WASTES? | <input type="checkbox"/> | <input type="checkbox"/> |
| iv) | TO RENEW WATER LINES? | <input type="checkbox"/> | <input type="checkbox"/> |
| v) | TO RELOCATE HOT WATER TANK? | <input type="checkbox"/> | <input type="checkbox"/> |

ENERGY _____

WALLS:	G.	F.	P.	COMMENTS:
--------	----	----	----	-----------

PLASTER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLYWOOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DRYWALL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CEILINGS:	G.	F.	P.	COMMENTS:
-----------	----	----	----	-----------

PLASTER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLYWOOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DRYWALL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TILE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

INSULATION:	G.	F.	P.	N.	COMMENTS:
-------------	----	----	----	----	-----------

WALLS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CEILINGS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ROOF:	G.	F.	P.	COMMENTS:
-------	----	----	----	-----------

FRAMING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SHEATHING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ROOFING:	G.	F.	P.	COMMENTS:
----------	----	----	----	-----------

BUILT-UP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ASPHALT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ROLL ROOFING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WOOD SHINGLES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	G.	F.	P.	COMMENTS:
--	----	----	----	-----------

EAVESTROUGH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DOWNPIPE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FASCIA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SOFFIT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WINDOWS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DOORS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GLASS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

STORMS & SCREENS: EXISTING _____ REQUIRED _____

DOES THE OWNER REQUEST STORMS & SCREENS? YES _____ NO _____

STORM DOORS: EXISTING _____ REQUIRED _____

DOES THE OWNER REQUEST STORM DOORS? YES _____ NO _____

PAINTING & DECORATING:

INTERIOR: _____

EXTERIOR:

CHIMNEY:

GOOD
FAIR
POOR

COMMENTS:

CLADDING:

G. F. P.

COMMENTS:

BRICK
BRICK VENEER
WOOD FRAME
INSUL BRICK
BLOCK
ALUMINUM
VINYL
STUCCO
PEBBLEDASH
ASBESTOS SIDING
OTHER

[illegible]

DOES THE OWNER REQUEST SIDING?
YES NO

PORCH:

G. F. P.

COMMENTS:

ROOF
CLADDING
FLOORING
STEPS

ACCESSORY BUILDINGS:

G. F. P.

COMMENTS:

GARAGE
SHED
OTHER

BUILDING USAGE:

SINGLE FAMILY

SEMI-DETACHED

DUPLEX

TRIPLEX

OTHER

TOTAL OCCUPANCY:

NO. OF EXITS:

REQUIRED NO. OF EXITS:

FIRE SEPARATIONS
FIRE DOORS
FIRE WALLS
HEATING SEPARATED

Y.	N.	P.

		1st STOREY	2nd STOREY	3rd STOREY
ROOM TYPE				
LOCATION				
SIZE	LENGTH			
	WIDTH			
	HEIGHT			

CONTINGENCY FOR REPAIRS OR ALTERATIONS SHOULD BE ALLOCATED IN THE AMOUNT OF \$ _____ WHERE AND WHEN NECESSARY, AFTER ALL TRADES HAVE COMPLETED THEIR WORK.

ADDITIONAL COMMENTS:

INDEX

INDEX

The following index is highly selective. It is designed to provide ready access to substantive information. Incidental mentions in the text are therefore largely ignored.

- Absence from Property Standards Committee, A-6
- Accessory building
 - definition of, 3-5
 - maintenance of, 3-10
- Amperage, B-36
- Appeal
 - to Property Standards Committee, 4-17
 - to Judge, 4-23
- Appliance wattage, B-42
- Aquastat, B-35
- Areaway, B-6
- Area wall, B-6
- Ash dump, B-3
- Attic, inspection of, 5-9
- Backfill, B-5
- Baldwin Act, The, 2-1
- Balloon framing, B-12
- Baluster, B-6
- Balustrade, 3-5
- Barge board, B-4
- Barometric butterfly, B-35
- Basement
 - floor slab, B-5
 - gravel fill, B-5
 - inspection of, 5-4
 - structural details, B-5
 - waterproofing, B-21
- Bathroom
 - access to, 3-14
 - definition of, 3-5
 - enclosure of, 3-14
 - inspection of, 5-8
- Bearing wall, definition of, B-9
- "Better Place to Live, A", 1-6
- Bolts - see Connectors
- Brace framing, B-12
- Bridging
 - definition of, B-4
 - function of, B-8
- Builder - see Contractor
- Building
 - definition of, 3-6
 - multiple use, definition of, 3-6
 - paper, B-5
- Building Code, Ontario, 3-3
- "Building Construction Cost Data", 5-21
- "Building Estimators Reference Book", 5-18
- Built-up roof, B-16
- Bunnell, A. E. K., 1-5
- Canopy, B-6
- Carpentry
 - finish, definition of, B-11
 - rough, definition of, B-11
- Case files, 4-25
- Ceiling, maintenance of, 3-13
- Certificate of Compliance, A-8
- Chimney
 - breast, B-3
 - cap, B-3
 - definition of, B-3
 - flashing, B-3
 - proper use, 3-15
- Chord, B-15
- Circuits - see Electrical System
- Clay tile roof, B-16
- Cleanliness, maintenance of, 3-13
- Clean out door, B-3
- Collar beam, B-3
- Committee, definition of, 3-6
- Community Renewal Branch, Ministry of Housing and the Property Standards By-law, 2-10
 - assistance and advice, 2-10
 - in building conservation, 1-4
 - in urban renewal, 1-6

- Compliance with Order
 - mandatory, 4-1
 - procedure, 4-17
 - role of P.S.O. in, 4-1
 - voluntary, 4-1
- Composition roof, B-16
- Compression, B-7
- Conduction, definition of, B-29
- Conductors - see Electrical System
- Connectors, B-10
- Consumer Protection Act,
 - Ontario, 5-28
- Contract
 - preparation of, 5-31
 - types of, 5-33
- Contractor, selection of, 5-26
- Convection, definition of, B-29
- Corner
 - brace, B-4
 - post, B-4
- Cornice, B-4
- Cripple jack, B-13
- Curtain wall, B-9
- Dampness
 - in basements, 5-5
 - regulation of, 3-12
- Decision to appeal - see Order
- Deficiencies, identification of, 5-4
- Demolish, power to, A-8
- Dining room, 5-11
- Do-it-yourself, 5-35
- Doors, maintenance of, 3-12
- Dormer
 - gable, B-14
 - hip, B-14
 - shed, B-14
- Dowels - see Connectors
- Downspout, B-4
- Drainage system
 - description of, B-26
 - pipe sizes, B-26
 - regulation of, 3-9
 - waste backup, B-29
- Dutch barn roof, B-14
- Dwelling
 - definition of, 3-6
 - multiple, 3-6
- Egress, means of
 - definition of, 3-6
 - regulation of, 3-12
- Electrical system
 - circuits, B-47
 - conductors, B-48
 - description of, B-36
 - inspection of, B-37
 - service adequacy, B-40
 - service provision, 3-15
 - wiring, condition of, 3-15
 - wiring inspection, 5-7
- Elevation view, B-7
- Enabling legislation
 - absence of, 2-2
 - purpose of, 2-1
- Enforcement of order, A-8
- Entry to dwelling, right of, A-4
- Environment protection, 3-3
- Equipment, cost of - see Estimating
- Estimating
 - equipment cost, 5-19
 - example of, 5-28
 - labour cost, 5-18
 - material cost, 5-12
 - methods of, 5-12
 - overhead cost, 5-19
 - purpose of, 5-22
 - unit price, 5-20
- Exterior, inspection of, 5-9
- Filing
 - documents, Property Standards
 - Standards Committee, A-6
 - inspection reports, 4-3

Finish, wood for, B-9

Fire

- prevention, 3-3
- resistance, 3-6
- stopping, B-11

Firebrick, B-3

Fire-cut, B-11

Fire-o-matic, B-35

Fireplace, B-3

Fixture units

- definition of, B-26
- rating, B-28

Flashing, B-16

Floor, maintenance of, 3-13

Flooring

- definition of, B-5
- paper, B-5
- slab - see Basement
- wood for, B-9

Flue liner, B-3

Foot of radiation, B-30

Footing

- definition of, B-5
- drain tile, B-5

Forced air heat - see Heating

Foundation

- definition of, B-10, B-20
- inspection of, 5-4
- maintenance of, 3-11
- repair of, B-20
- wall, B-5

Framing

- methods of, B-11
- wood for, B-9

Furring, B-6

Gable

- dormer, B-14
- roof, B-4, B-14

Gambrel roof, B-14

Garbage disposal, 3-10

Girder, B-5

Grade line, B-5

Grants

- and the P.S.O.'s estimate, 5-2
- application for, 2-7, A-9
- enabling legislation, 2-6
- the P.S.O.'s role, 2-7

Gravel fill, B-5

Grounds, 5-10

Gutter, B-4

Handbook

- aims of, Intro.-6
- structure of, Intro.-6

Head, window, B-6

Hearing

- before P.S.O., 4-12
- conduct of, 4-12
- support for P.S.O., 4-13

Hearth, B-3

Heating

- fire hazard, 3-15
- forced air, B-36
- hot water, B-32
- inspecting system, 5-6
- location of, 3-15
- maintenance of, 3-15
- methods of, B-29
- noise in system, B-31
- steam, B-30
- systems, 3-15
- venting system, 3-15

High limit control, B-35

Hip

- dormer, B-14
- jack, B-13
- roof, B-14

Hot water heat - see Heating

Individual property rights, 2-2

Inspection

- check list, C-2
- enabling legislation, A-3
- progress, 5-36
- system, 5-1

- Insulation
 - definition of, B-17
 - regulation of, 3-11
 - roof, B-3
 - wall, B-5
- Jack
 - cripple, B-13
 - hip, B-13
 - valley, B-13
- Jalousie window, B-19
- Jamb, window, B-19
- Joist, B-4
- Kelly, George, 1-6
- Kitchen
 - access to, 3-14
 - equipment, 3-14
 - inspection of, 5-8
- Labour cost - see Estimating
- Land Titles Office, A-5
- Lath, metal, B-5
- Lawson, M. B. M., 1-7
- Lien
 - municipal loans as, A-9
 - release from, 5-32
- Light, provision of, 3-16
- Lintel, B-6
- Load
 - dead, B-7
 - live, B-7
- Loan
 - and the P.S.O.'s estimate, 5-2
 - application for, 2-7, A-9
 - enabling legislation, 2-6
 - registration, A-9
 - the P.S.O.'s role, 2-7
- Local self-government, 2-1
- Louvers, B-4
- Lumber, definition of, B-10
- Maintenance (see also Property Maintenance and Occupancy Standards), definition of, 3-6
- "Maintenance of Property--A Program for Ontario", 1-7
- Mandatory compliance - see Compliance
- Mansard roof, B-14
- Material cost - see Estimating
- Means of Egress - see Egress
- Metal lath, B-5
- Millwork
 - definition of, B-10
 - wood for, B-9
- Mullion, B-19
- Multiple use building, 3-6
- Municipal Act, The, 2-2
- Nails - see Connectors
- National Housing Act, 1-5
- Neglect of Property
 - description of, 1-1, 1-2
 - results of, 1-1, 2-3
- Newel, B-6
- NIP (Neighbourhood Improvement Program), 2-12
- Non-residential property
 - standards, 1-7
- Notice, informal
 - description of, 4-5
 - example of, 4-7
- Notice
 - of Appeal - Property Standards Committee, A-7
 - of hearing - Property Standards Committee, A-1
- Notice of violation
 - and the By-law, 4-11
 - enabling legislation, A-4
 - example of, 4-10
 - form of, 4-9
 - issuance of, 4-8

Occupancy

- definition of, 3-7
- standards, 3-16

Occupant, definition of, 3-7

Official Plan

- and housing conservation, 1-6
- and the Property Standards By-law, 2-8
- amending the, 2-10

Officer, definition of, 3-7

OHRP (Ontario Home Renewal Program), 2-12

Orangeburg pipe, B-21

Order (for repair)

- appeal to Property Standards Committee, 4-17
- appeal to Judge, 4-23
- content of, A-4, 4-16
- delivery of, A-5
- discharge of, 4-25
- drawing up, 4-14
- example of, 4-15
- issuance of, 4-14
- registration of, A-5, 4-16

Overcrowding, 1-3

Overhead, cost of - see Estimating

Owner, definition of, 3-7, A-2

Parting bead, B-19

Partition, B-17

Permissive legislation, 2-2

Pests

- prevention, 3-10
- termite shield, B-5

Piers (cellar), B-23

Planning Act, The (see Appendix A)

- amendment of, 1-7
- intent Sections 36 and 37, 2-4
- passage, 1-6

Plan view, B-7

Plate, B-4, B-13

Platform framing, B-12

Plumbing

- inspection of, 5-7
- maintenance of, 3-14
- system, B-24

Policy statement

- adoption of, A-3
- and the Property Standards By-law, 2-8

Porches, maintenance of, 3-12

Power to demolish, A-8

Power to repair, A-8

Property

- and the Planning Act, A-2
- definition of, Intro-5, 1-1, 3-7
- identification of, 2-9
- non-residential, 3-7
- residential, 3-8
- rights, 2-2

Property Maintenance and

- Occupancy Standards and the Official Plan, 2-8
- definitions, 3-4, 3-8
- development of, 3-2
- guidelines, 3-3
- scope, 3-1
- standards, 3-9

Property Standards By-law

- and other programs, 2-12
- and public property, 2-11
- and self-help projects, 5-35
- and the Official Plan, 2-8
- approval of, 2-11
- establishment procedure, 2-5, 2-8
- function of, 1-7, 2-8
- Implementation of, 2-9
- loans and grants, 2-6
- purpose of, 2-11
- review of, 2-10
- status of, 2-11
- use in listing deficiencies, 5-10

Property Standards Committee

- and the Planning Act, 2-5, A-5
- and the P.S.O., 4-21
- definition of, 3-6
- composition of, 4-18, A-6
- procedures, 4-18, 4-32, A-6
- quorum of, A-6

- Property Standards Officer
 - and NIP, RRAP and OHRP, 2-14
 - communication, 4-4
 - consultation, 3-3, 4-3
 - experience of, 4-3
 - role of, 1-4, 2-14
 - the individual, Intro-2
 - training of, 4-3
 - success of, 4-5
- Quorum, Property Standards Committee, A-6
- Radiation (see also foot of radiation), definition of, B-24
- Radiators, computing size, B-30
- Rafters, definition of, B-3, B-13
- Rail - see Stair
- Recirculating pump - see Heating
- Records, 4-4
- Reference to reports, 4-4
- Regional Municipalities, 2-1
- Registration of Order - see Order
- Rehabilitation, process of, 5-1
- Remuneration - see Property Standards Committee
- Repair
 - definition of, 3-7, A-2
 - NIP, RRAP, OHRP, 2-12
 - power to, A-8
- Residential property - see Property
- Resolution of Council
 - and NIP, RRAP and OHRP, 2-12
 - scope, 2-12
 - status, 2-2
- Ridge
 - board, B-3, B-13
 - definition of, B-3
- Rise (see also Stair), B-18
- Riser (see also Stair), B-18
- Roof, maintenance of, 3-12
- Roofing
 - definition of, B-4
 - types, B-16
- Room
 - habitable, 3-6
 - non-habitable, 3-6
- RRAP (Residential Rehabilitation Assistance Program), 2-12
- Rotational force, B-7
- Run (see also Stair), B-18
- Safe passage, 3-10
- Scotia molding, B-18
- Screws - see Connectors
- Section view, B-7
- Self-help rehabilitation, 5-35
- Service of Order, A-5
- Service panel, electrical, B-43
- Settlement of foundation
 - repair of, B-23
 - signs of, B-23
- Sewage
 - definition of, 3-8
 - disposal of, 3-9
- Sewerage system, definition of, 3-8
- Shear force, B-7
- Sheathing
 - definition of, B-4
 - wood for, B-9
- Shed
 - dormer, B-14
 - roof, B-14
- Siding
 - beveled, B-5
 - wood for, B-9
- Sill, B-4, B-19
- Siphonage, B-26
- Soil stack, B-26
- Specifications, writing of, 5-24

- Stack switch, B-35
- Stair
 - inspection of, 5-8
 - maintenance of, 3-12
 - riser, B-6
 - stringer, B-6
 - tread, B-6
 - rail, B-6
- Steam heat - see Heating
- Stile, window, B-19
- Storm sewer, B-4
- Stringer - see Stair
- Studs, B-4
- Strut, B-16
- Sub-floor
 - definition of, B-4
 - wood for, B-9
- Summary Convictions Act, A-4
- Summons, 4-23
- Sump pump, B-21
- Tank, expansion, B-34
- Tension, B-7
- Termite shield, B-5
- Terms, definitions of, 3-4
- Thermostat, B-35
- Timber, definition of, B-10
- Toilet room
 - definition of, 3-8
 - enclosure of, 3-14
 - maintenance of, 3-14
- Trapseals, B-26
- Tread - see Stair
- Trim, wood for, B-9
- Truss
 - king, B-15
 - post, B-15
- Tuck pointing, B-21
- Valley, B-13
- Valley jack, B-13
- Valve
 - draw off, B-34
 - flow control, B-34
 - pressure reducing, B-32
 - pressure relief, B-32
 - shut off, B-25
- Ventilation, provision of, 3-16
- Vent pipe, B-26
- Violation, Notice of, A-4
- Voltage, B-36
- Voluntary Compliance - see Compliance
- Walls
 - exterior maintenance, 3-11
 - interior maintenance, 3-13
- Water
 - lines, B-25
 - supply, 3-13
 - heater (tankless), B-34
- Waterproofing - see Basement
- Wattage, B-36
- Web, B-15
- Weed control, 3-3
- Western framing - see Platform framing, B-12
- Wind bracing, B-11
- Winder, B-18
- Windows
 - components, B-6
 - maintenance of, 3-12
 - types of, B-19
 - wood for, B-9
- Wiring panels
 - fused, B-45
 - fuseless, B-43
- Wood, classification of, B-9
- Yard
 - definition of, 3-8
 - maintenance of, 3-9
- "Yardsticks For Costing", 5-21
- Zoning
 - conflicts, 2-3
 - standards, 3-3

